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THE
DENTAL DIGEST

Vol. XXX NOVEMBER, 1924 No. 11

Dangers of the X-Ray and Precautions in its Use

By Geo. R. Warner, M.D., D.D.S., Denver, Colorado

The x-ray is dangerous—just how dangerous we do not know. Therefore, there is no middle ground for an x-ray operator to take in the matter of safety. He should not expose himself to the ray at all and he should use every known precaution for the protection of the patient.

If the skin is exposed to the x-ray long enough an erythema or redness of the skin will be caused. This amount of exposure is called an erythema dose. When an erythema dose has been given the patient should not be exposed to the ray again before the elapse of three weeks.

The unit of exposure is reckoned in terms of milliampere seconds; that is, the number of milliamperes the tube is drawing multiplied by the number of seconds of exposure gives the number of milliampere seconds. For example, if the tube is drawing 25 milliamperes and the exposure is for four seconds we would say that it is a hundred milliampere seconds' exposure.

Of course, the target skin distance is also a factor. The greater the distance between the target and the skin the less the burn, other factors remaining the same. The army manual says that "a target skin distance of 20 inches and a 5-inch spark gap will allow, without the use of a filter, an exposure of 45 milliampere minutes or 2,700 milliampere seconds." This is higher than estimated by some other authorities. One experienced operator told me that he considered 1,250 milliampere seconds as a safe maximum dose, without using a filter. The use of a one-millimeter aluminum filter will allow an increase of 40% in the maximum dose. But this fact must be borne in mind: that young or old are more easily affected than people in middle life. I knew a child of six whose hair on the back of his head fell out from having sinus x-rays made. Of course, I don't know what dosage he had, but I make a complete sinus examination using only 300 milliampere seconds. I know of the case of an elderly man having his beard fall out from the use of the x-ray in checking up the progress of root canal surgery. If five exposures had been made in the case a maximum of from 500 to 750 milliampere seconds only would have been used.

I have adopted for myself as a maximum dose to be given to the average patient 1,400 milliampere seconds, using an aluminum screen

and a 4-inch spark gap, with a 15-inch target skin distance. As a matter of fact, one rarely ever approaches this amount in diagnostic dental radiography. If one is doing x-ray therapy the exposure should be most carefully checked. However, the greatest hazard is not to the patient but to the operator, because the effects of the x-ray are cumulative. Moreover, the injurious effects may not, and usually do not, manifest themselves until real injury has been done. For self-protection the operator should keep as far from the tube as possible. He should allow no direct rays to fall on him. He should have some absorbing substance between himself and the tube. By "absorbing substance" I mean lead or lead glass. If an open lead-glass shield is used around the tube it would be safer for the operator to stand behind a lead shield and look through lead glass. If the tube is encased in lead glass, the operator will not need other protection, unless possibly he is operating constantly. In fluoroscopic work rubber aprons and gloves, impregnated with lead, must be used and other precautions observed.

In dental radiography the operator should *never* hold the film or expose any other part of his body to the direct rays. If there is any question of rays reaching the body of the operator he can pin one or more x-ray films to his clothing and, after working a given length of time, develop them to see if they have been affected by the rays.

In x-ray work the danger from the x-ray itself is the more subtle, because it cannot be felt, but there is danger also from the electric current. In this work a very high-tension current is generated, with a consequent tendency to "jump" to the body of patient or operator and back to earth through the nearest "ground." This may occur in two ways:

1. By the grounding of the patient because of his being too close to or against water pipes, or on a chair which is too close to a ground, or by contact with poorly insulated grounding material.

2. By having some part of the high-tension system near enough to the patient so that the current can jump the air. This is especially apt to happen with ladies who have on silk dresses and particularly in the summer when the patient is perspiring.

If the tube fails to take the current the line is that much overloaded and consequently more apt to jump to the patient. This may occur in the following ways:

1. Failure to complete high-tension connection.

2. Failure to light Coolidge filament before turning on current.

3. Breaking or disconnecting Coolidge filament circuit while running.

4. Attempting to pass current through the tube in wrong direction.

5. Hard or "cranky" gas tube which refuses to take current.

Sometimes when the current is thrown into the high tension there occurs what is known as a "surge," at which time the current is particularly apt to jump to a ground or from one wire to the other.

All high-tension wires should be kept at least twice as far from the patient as the working spark gap; that is, if the working spark gap is 5 inches high, high-tension wires should not be closer than 10 inches to the patient.

Artificial respiration should be used at once in case of electric shock. The prone method is good. In this the patient is placed flat on his stomach with head turned to one side and arms out straight above the head. The person doing the resuscitation should straddle the patient, facing the patient's head. With his hands spread out on the patient's loins in the region of his floating ribs, the operator's weight should be slowly thrown on the patient, held there for two seconds, then released for two seconds, and so on, until normal respiration is established or the case is apparently hopeless. One should persist in artificial respiration for two hours before considering the case hopeless.

610 California Building.

Washington's Dental Woes

George Washington had bad teeth and a Philadelphia dentist, but during the Revolutionary War he had trouble getting to Philadelphia for treatment.

Once in 1778 he wrote his Philadelphia dentist and the British captured the letter. The epistle became one of the treasures which Sir Henry Clinton, British commander-in-chief in America, passed on to his heirs.

This and other intercepted letters, together with valuable American historical correspondence among the Clinton family papers, have been auctioned at Hodgson's, in London, according to a cable dispatch in Philadelphia Public Ledger. Dentistry as practiced by Dr. Barton, of Philadelphia, in Revolutionary days, was of a somewhat primitive nature, as Washington's letter reveals. He wrote:

"A day or two ago I requested Colonel Harrison to apply to you for a pair of pincers to fasten the wire of my teeth. I hope you furnished him with them. I now wish you would send me one of your scrapers, as my teeth stand in need of cleaning and I have little prospect of getting to Philadelphia."

Valuable Facts in Orthodontia of Special Interest to the General Dentist*

By Samuel Herder, D.D.S., New York, N. Y.

(*Continued from October*)

Classes of Malocclusion

In order that it may be more intelligently understood and treated, malocclusion of human teeth has been divided into four classes, namely: neutroclusion or Class I; distoclusion or Class II; mesioclusion or Class III; unilateral mesioclusion and distoclusion or Class IV. (Fig. 2).

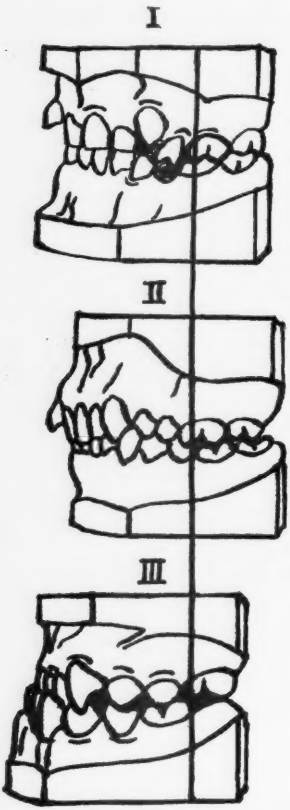

Fig. 2

This drawing, which is an alteration of Dr. Pullen's chart, was made for the sake of simplicity. It shows an example of each of the chief classes of malocclusion, namely: Classes I, II and III. The occluding models have been placed one directly below the other, i.e., Class II below Class I, and Class III below Class II, with the planes of occlusion approximately parallel to each other. The line drawn through the mesial cusps of the upper first permanent molars is approximately at right angles to the planes of occlusion just mentioned. The following facts regarding the antero-posterior relations, particularly of the first permanent molars, may thus be clearly noted: Class I shows the lower first molar one-half cusp mesial to the upper first molar; Class II shows the lower first molar at least one-half cusp distal to the upper first molar; Class III shows the lower first molar at least one and one-half (more often two and one-half) cusps mesial to the upper first molar.

*Read before The Mount Royal Dental Society, Montreal, Quebec, November 9, 1923.

Before very briefly describing these classes, I want to call attention to the fact that individual teeth may occupy the following malpositions:

Mesioversion, when they are mesial to normal.
Distoversion, when they are distal to normal.
Labioversion, when they are labial to normal.
Buccoversion, when they are buccal to normal.
Linguoversion, when they are lingual to normal.
Infraversion, when they are shorter than normal, i.e., not fully erupted to reach the plane of occlusion.

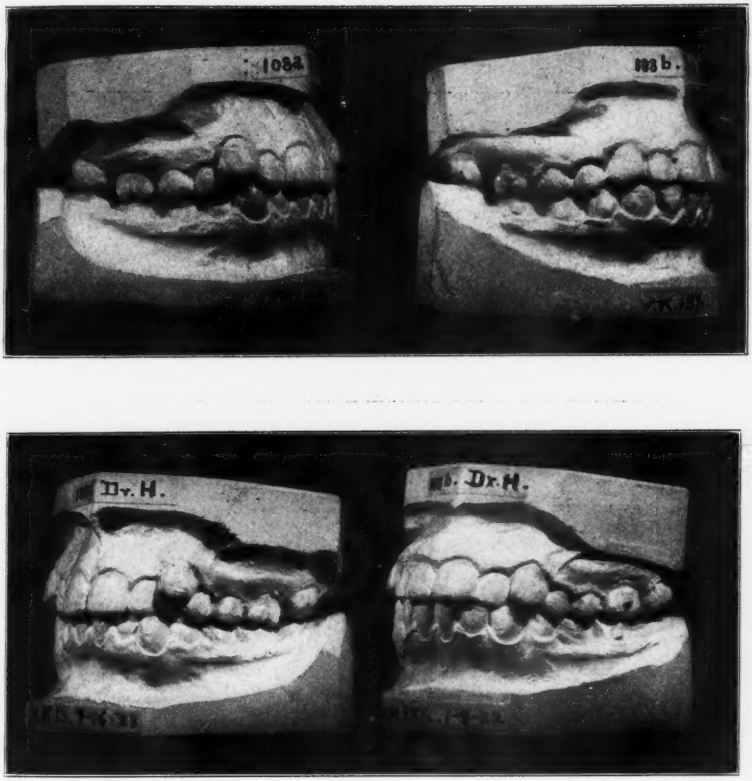

Fig. 3 (Herder)

This illustration shows a case of neutroclusion or Class I. The upper models are of the right side, and the lower models are of the left side. Note the improved position particularly of the upper canine in the models to the right of the picture, taken about six months after treatment, as compared with the models to the left, taken before treatment was commenced. Note also the position of the lower first molar which is one-half cusp mesial to the upper first molar. This condition always prevails in Class I and is also present in normal occlusion.

Supraversion, when they are longer than normal, i.e., when they have grown too long or beyond the occlusal plane.

Torsiversion, when they are rotated on their axes away from normal.

Transversion, when they are transposed, i.e., when, for example, a canine is situated between the two bicuspids.

Neutroclusion or Class I presents a condition in which there is a normal mesio-distal relation of the arches, particularly noticeable in the molar and bicuspid regions. The first molars, for example, will be in normal occlusion mesio-distally (Fig. 3). There is usually a narrowing of both arches, thus causing the molars and bicuspids to be in lingual occlusion. The anterior teeth may occupy all of the various positions of malocclusion.

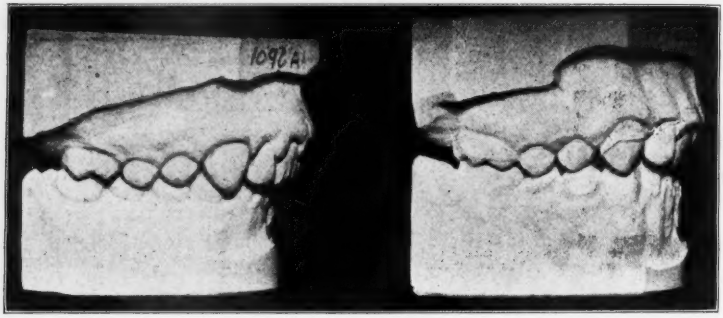

Fig. 4 (Rogers)

This illustration shows a case of distoclusion, better known as posteroclusion or Class II. The model to the left shows the condition before treatment. The lower first molar may be seen to be one-half cusp distal to the upper first molar. The model to the right shows this condition corrected, the lower first molar being one-half cusp mesial to the upper molar. In the treatment of this case lingual wires in conjunction with muscular exercise were employed.

Distoclusion or Class II presents a condition in which the lower arch is distal to normal. The lower first bicuspid, for example, will be found to be distal to the upper first bicuspid instead of mesial to it as it is in normal occlusion or neutroclusion (Fig. 4). Also, the mesial cusp of the lower first molar will be found to be distal to the mesial cusp of the upper first molar instead of mesial to it as it is in normal occlusion or neutroclusion.

The so-called divisions in distoclusion depend on whether the upper anterior teeth are in labioversion, which is Division I, or in linguoversion, which is Division II. The so-called subdivision in distoclusion depends upon the distal relation of the lower arch occurring on one side of the jaw only. In other words, subdivision is here synonymous with unilateral distoclusion.

Distoclusion with protruding anterior teeth (Division I) presents narrow arches, a receding chin and the habit of mouth-breathing. Distoclusion with the anterior teeth retruding or bunched (Division II) does not present the pronounced narrow arches, the receding chin, or the pernicious habit of mouth-breathing (Figs. 4, 5, 6).

Mesioclusion or Class III presents a condition in which the lower arch is mesial to the upper arch by at least the width of one bicuspid. For example, instead of the distal plane of the lower first bicuspid occluding with the mesial plane of the upper first bicuspid we find it occluding with the mesial plane of the upper cuspid. The lower first molar will be found to be entirely or at least one and one-half cusps mesial to the upper first molar instead of one-half a cusp mesial to it

Fig. 5a.

Fig. 5a.

Fig. 5b.

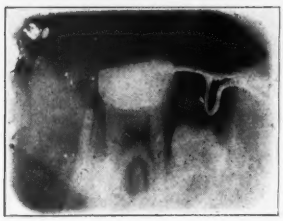

Fig. 5b.

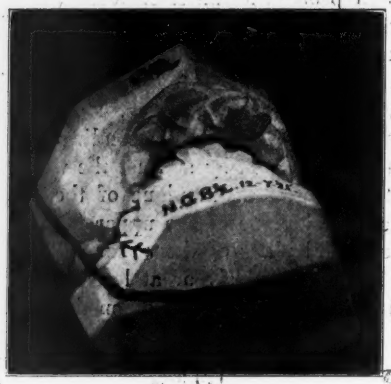

Fig. 5c.

Fig. 5 (Herder)

Another case of distoclusion or posteroclusion (Class II). Note the protruding upper incisors (Fig. 5a), practically outside the mouth, and the receding and underdeveloped lower jaw. The models of the case may be seen in Fig. 5c. The arrow points to the very narrow space between the lower first bicuspid and the lower first molar. The radiogram (Fig. 5b) of this area before treatment shows the second bicuspid completely imbedded in the mandible. The radiogram to the right was taken two years later, with the lingual wire in position. As a result of treatment which included the expansion of both arches, the space was enlarged to make room for the second bicuspid, which may be seen about to erupt.

Fig. 6a.

Fig. 6a.

Fig. 6b.

Fig. 6 (Herder)

Another example of posteroclusion. The receding chin is accentuated by the protruding upper anterior teeth, with the resultant disagreeable effect upon the features. The models of the case may be seen in Fig. 6b. The arrow points to the lower right cuspid and shows it decidedly distal to the upper cuspid instead of occluding with its mesial plane, as is the case in normal occlusion or neutroclusion. The flaccid, underveloped upper and lower lips, due to improper and insufficient exercise of the muscles of the lips, face and jaws, may be clearly seen in the photographs.

as is the case in normal or neutroclusion (Fig. 7). I might here mention that bilateral mesioclusion is known as "division" and unilateral mesioclusion as "subdivision" (Figs. 2, 8, 9).

Class IV (so called incorrectly) is in reality unilateral mesioclusion and distoclusion. It presents a condition in which the lower arch is mesial to normal on one side of the median line and distal to normal on the other side. There are very few so-called Class IV cases.

Mouth-breathing and the Lack of Development of the Muscles of the Face and Jaws

It should be borne in mind that, as a rule, malocclusion, if not corrected, has a tendency to become more pronounced as time goes on. In distoclusion cases, with distinctly protruding upper anterior teeth and entire lack of occlusion of those teeth, there is of course a marked impairment in their function. With the lack of this function we find lack of development of the tissues, such as the alveolus, immediately surrounding the teeth concerned. In these cases, with the teeth at rest, there is very frequently insufficient room for the tongue. As a direct consequence, the frequent opening of the mouth and mouth-breathing become a habit. The harmful effects of mouth-breathing, resulting in the inhalation of unfiltered and improperly warmed air as contrasted

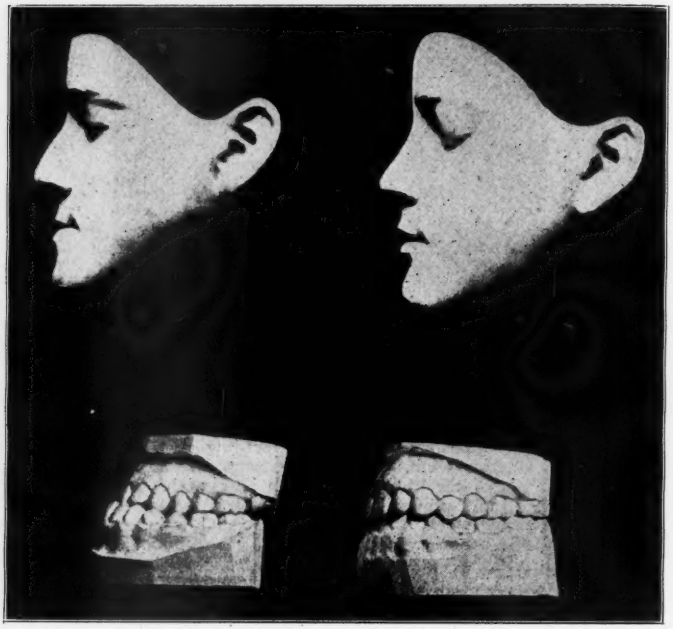

Fig. 7 (Case)

An example of mesioclusion, better known as anteroclusion or Class III. The facial cast and models to the left show the case before treatment. These models show the lower first molar two and one-half cusps mesial to the upper first molar instead of one-half cusp mesial to the upper first molar, as is the case in normal occlusion. The facial cast and models to the right show the case after treatment. The lower first molar here occupies its normal position just mentioned. The improved position of the lower jaw and lip as well as other features can be plainly seen.

with the air breathed through the nose, which is both filtered and warmed to body temperature, are undoubtedly well known to you all. The decidedly beneficial effects upon the health of the tissues surrounding the nose and air passages, due to the correct and normal stimulation of the air as it passes through the nasal passages, cannot be overestimated. Just how great would be the reduction in the number of diseases of the nose and throat through the advent of proper nose-breathing cannot here be stated.

In distoclusion cases such as those just mentioned there is a distinct lack of development of the muscles of the lips through the constant habit of keeping the lips apart. The muscles of mastication also, such as the temporal and masseter muscles, are poorly developed on account

of the marked reduction in the area of occlusion and, coincident with it, of the amount of exercise of those muscles during the process of mastication. As a direct result of this lack of exercise, there is a decided lack of development of the alveolar processes, resulting in a distinct lack of development of both upper and lower jaws. This lack of development in the lower jaw makes the appearance of a receding chin more pronounced on account of the protrusion of the upper anterior teeth associated with it (Figs. 4, 5, 6).

Fig. 8a.

Fig. 8a.

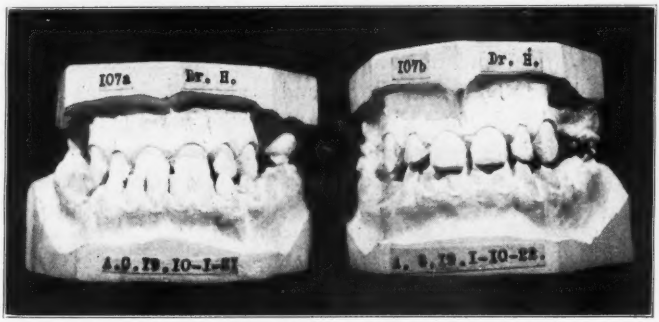

Fig. 8b.

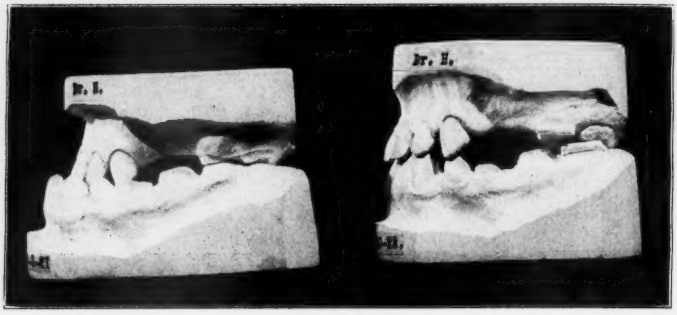

Fig. 8c.

Fig. 8 (Herder)

A case in which the lower arch is anterior to the upper arch instead of immediately posterior to it (the normal relation). The models to the left show the case before treatment. The models to the right show the case after about two months' treatment. The photograph of the patient to the left, before treatment, shows the protruding lower jaw and lip. The photograph to the right, after two years, shows the distinctly improved features. The lower jaw and lip have been brought back to normal.

Muscular Development and Its Effect Upon the Patient's Health and Career

In the cases just referred to we find that not only are the lips flaccid and the muscles of the face and jaws lacking in tone, but the lungs and chest also are poorly developed, and there is a distinct lack of correct posture of the entire body. There is also a tendency in a case of this kind for a person to neglect to perform the strenuous physical exercise so necessary to a healthy vigorous constitution. Such an individual is usually conscious of his abnormal physical condition. This has a depressing effect upon him. He lacks confidence in himself and certainly does not instill confidence in others. Can the future career of such a backward individual be of much promise? Correct his subnormal condition, and what happens? He breathes, chews and talks well. He looks well, and is better and healthier. He has and instills confidence and feels more like coping with the world and its problems. His blood circulates better, and he is not afraid of at least a moderate amount of strenuous physical exercise. He has become a man among men and stands ready to take his place as one of the useful citizens of the world.

Muscular Exercise

In the treatment of malocclusion the development of the muscles of the face and jaws through systematic exercise should not be neglected.

Fig. 9a.

Fig. 9a.

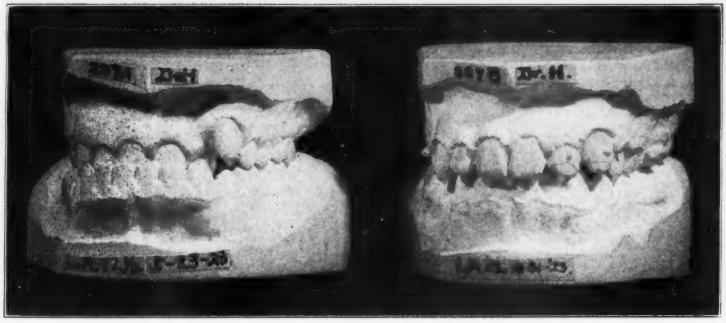

Fig. 9b.

Fig. 9 (Herder)

A case in which all of the lower anterior teeth are decidedly anterior to normal. The models to the left, taken before treatment, show the upper left cuspid in labioversion, with very little space between the lateral and the first bicuspid for its normal position. The models to the right show the case after five months' treatment. The upper anterior teeth, and particularly the upper left cuspid, have been brought into a position approximately normal. The photograph to the left, taken before treatment, shows the protruding lower jaw and pronounced lower lip. The photograph to the right, taken five months after treatment was begun, shows the improvement of the features, the lower lip being noticeably brought back. Further improvement of the features will be expected when normal function of the teeth has been restored, bringing with it the proper and normal development of the upper jaw.

The external and internal pterygoids, when pushing the mandible forward; the temporal and masseter, especially when biting; the orbicularis oris and the muscles of the lips and the muscles of facial expression and the tongue should all be included in a prescribed system of intelligent exercises. The development of the muscles resultant from such exercises will materially assist in retaining corrected malocclusions and markedly improve the facial appearance.

Criminal Extraction of Malposed Teeth

The indiscriminate extraction of malposed teeth for the presumable purpose of improving the patient's appearance or occlusion is nothing short of criminal. If it is realized that the great majority of the cases of malocclusion can be restored to normal, or nearly so, through proper treatment, such pernicious malpractice will be in a large measure definitely checked. In most instances such extractions tend only to aggravate the condition, making the subsequent correction of the malocclusion much more difficult. Take for example a narrow arch with crowded anterior teeth. The trouble is not that the patient has too many teeth but that the arches are entirely too narrow to accommodate properly the patient's natural full quota of teeth. The remedy, therefore, lies in the expansion of the arches and the correction of the malocclusion, but certainly not in the extraction of one or more of perhaps prominently displayed malposed teeth. Will such extraction correct the narrow arches? It is quite evident that the contrary is true.

133 West 72nd St.

(*To be continued*)

A Picture History of Dentistry

The Era of Fauchard

By H. H. Manchester, New York, N. Y.

The situation in dentistry at about 1700 A. D. was described by Fauchard himself in the preface to his volume published in 1728.

"The most celebrated surgeons," he wrote, "having abandoned this branch of surgery, or having practiced it but little, their neglect opened

Dr. Pierre Fauchard.

the door to a class of persons, who, without scientific knowledge or experience or other qualifications, practiced it haphazardly without either principles or system. It was only in the year 1700 that the intelligent Parisians opened their eyes to these abuses. At that date it was made a law that those intending to practice dental surgery should undergo an examination by doctors learned in the branches of medical science, who should judge upon their qualifications."

This law, however, did not apply to extractors of teeth, and this work continued to be done by many quacks and ordinary artisans. Likewise, there was no dentist on the examining committee, a fact which Fauchard deplored and said prevented the practising dentists from being selected as carefully as they should have been.

In the first quarter of the century several treatises were published in different countries, which showed something of an awakening in dentistry before Fauchard published his own volume.

In 1717 Ludwig Kron, a barber of Leipsic, printed a work which might be entitled *The Barber's Apprentice Trained in Blood Letting and Tooth Pulling.* He made one interesting point contrary to pre-

The elaborate card of an assistant to Fauchard.

vious practice—that it was unnecessary to detach the tooth from the gum before extracting it.

The next year Ludwig Heister published a volume on surgery in which he had considerable to say of dentistry. He filed superficial caries and filled deeper cavities with white wax, while he used gold or lead leaf to fill molar cavities. He seated the patient on a low stool or on the ground for extracting a lower tooth, but on a high stool

in pulling an upper one. He mentioned removable prosthetic pieces consisting of partial sets of teeth from ivory or hippopotamus tusks. They were held in position by their form and were taken out at night.

The so-called English or German key was improved by Croissant de Garengeot into the pelican which was long known under his name.

Dental maladies were treated by Junker in a work on surgery in 1721, and in several later treatises. As a tooth powder he recommended particularly sage and salt.

Maquet de la Motte, in 1722, in a treatise, advocated opening abscesses of the gums very early in order to avoid infection of the jaw.

In 1725 Johann Goeritz pointed out the danger of spoiling two good teeth by fastening an artificial tooth to them. About this time Johann Fischer related a successful case of transplanted teeth, but Heinrich Bass maintained that they did not actually take root and were held in place by a contraction of the gums.

In the meantime Pierre Fauchard was becoming famous in Paris. He was born in Bretagne toward the end of the 17th century, probably about 1680. He studied his art under Alexandre Poteleret, who was a surgeon major of the navy. After this he set up for himself at Nantes. This was presumably before 1706, for in 1746 he wrote that he had had more than forty years of practice. At Nantes he acquired a reputation which at length spread to Paris and called him there. After years of successful practice in the capital, he published the results of his study and experience in his book "Le Chirurgien-dentiste," which came out in 1728.

There had been treatises by surgeons which touched upon dentistry and pamphlets on dentistry by practitioners who were not surgeons, but this was probably the first work by a practical dentist who had a scientific mind.

He gave a rather accurate description of the anatomy of the teeth and paid considerable attention to the maladies of teething children. In discussing the preservation of the teeth he made one suggestion which seems curious to us today. He advised that instead of a toothbrush a sponge should be used for rubbing them, because he believed that the horsehair brushes were too harsh and would wear down the enamel of the teeth. "Better," he said, "wash the mouth with tepid water and use only a sponge for rubbing."

He gave recipes for several mouth washes, all of them rather involved in composition. He listed over a hundred varieties of dental maladies or troubles, declaring that the majority of them were due to lack of cleanliness.

On the old question as to worms in the teeth, he stated that he had made diligent examination with the microscope, but had failed absolutely to find any.

In the case of a slightly decayed tooth, he filed or scraped it out and filled it with lead. If necessary, he opened up the center to permit the pus to pass out and then inserted oil of cloves or cinnamon. He admitted, however, that the operation was difficult to perform successfully in the case of molars.

Among the treatments which he carried out on the teeth, he mentioned cleaning, forcing apart, shortening, removing caries, cauterizing, filling, straightening, fastening, opening, drawing, replacing, transplanting, and the employment of artificial teeth.

6 DENTISTES.

DENTISTES.

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Fauchard, *rue des Cordeliers.*
Flamand, *rue Dauphine.*
Fontaine, *rue des Fossés Saint Germain.*
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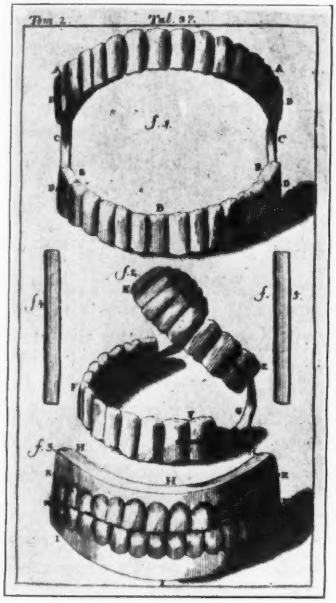
Garde, *rue Comtesse d'Artois.*
Hallé de la Touche, *Quai de l'Ecole.*
Herbert, *rue des Fossés Saint Germain.*
Jourdain, *Pont S. Michel*
Laudumiay, *Quai Pelletier.*
Laverne, *Cloître S. Germain l'Auxerrois.*
Le Monier, *rue Fromenteau.*
Le Roy, *rue de Grenelle Saint Honoré.*
Leroux, *Cimétiere S. Jean.*
Mouton, Dentiste du Roi, *rue d'Orléans S. Honoré.*
Quétiffant, } *rue du Four S.*
Perria, } *Germain.*
Senequier, *rue de la Harpe.*
Tubeuf, *Pont Marie.*

Parisian dentists in Fauchard's time, two centuries ago. Note that Fauchard was an expert, not a master of surgery.

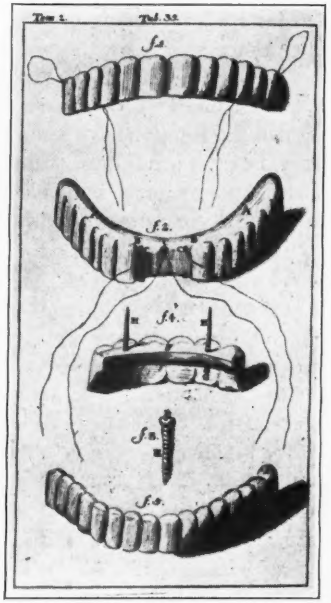
In inserting a pivot tooth, he first cauterized the canal. When no whole teeth but only roots were present, he fastened prosthetic pieces to them by screws. He illustrates various methods for fitting in entire sets of teeth, the upper and lower, as well as double. In the case of an upper denture, he used springs fitted to bands which set over the lower teeth.

In fastening prosthetic pieces he used gold thread to tie them to natural teeth; and frequently supplied artificial crowns if the roots were in good condition. Rather surprisingly, for filling he preferred tin to either lead or gold, on the ground that it was lighter than the former and less expensive than the latter.

He described a dozen cases of dental irregularity which he had corrected, and five successful cases of the replantation of teeth in their own sockets, as well as one successful case of transplanting a tooth from one person to another.



A complete denture, by Fauchard.



A prosthetic piece fastened by pivots and wires, by Fauchard.

Fauchard invented several prosthetic pieces and methods of his own, but his greatest merit is that he applied a scientific training to the subject and described in his book all the best theory and practice of the time. In France his work was still consulted as an authority more than a hundred years after its original publication.

342 West 85th Street.

An Informal Talk on Oral Sepsis—From the Viewpoint of the Internist*

By Harlow Brooks, M.D., New York, N. Y.

Those of us who have been working for many years in public hospitals, particularly in hospitals which draw their clientele from the poorer classes of people, have been impressed with the frequency with which we find oral sepsis in patients as they come to the hospitals, whether in the surgical, obstetrical, or the medical wards. Obviously, all diseases are not caused by oral sepsis, although there are those enthusiasts who perhaps may say that this is so, and in by far the greater number of cases there appears to be no connection between oral sepsis and the disease for which the patient enters the hospital. You will pardon me if I take a pessimistic view—not that we do not all recognize the relation which may exist between oral sepsis and general disease, but the pendulum swung by Dr. Meyer tonight must be a little retarded and we must hold on a little so that we may get back to a more normal viewpoint in regard to this very popular subject.

I think the chief harm which the study of oral sepsis has done for medical and dental men, and perhaps for our patients as well, has been that because of the existence of oral sepsis many more important gastro-intestinal disturbances may have failed to be recognized and many diseases due to other causes may have been attributed to it because other factors have not been sufficiently considered. We have a common basis, and for the good of our patients we must work together to clear up this problem. This is obviously a field for united medical and dental action, but it appears to me that the best thing of all is that it has taught us the necessity for teamwork.

In the importance of dental disease in medicine, that of oral sepsis, from my standpoint, is far less than the necessity to the average medical case of normal dental efficiency. Perhaps I am wrong in saying that; I know if I should make that statement in some medical societies today I should be very greatly criticized. Nevertheless, I think the man with some teeth, even though badly infected, is better off than the man with no teeth at all or perhaps one who must wait some time to be fitted with some. I know in some cases patients have been advised by physicians to have all their teeth out, irrespective of their digestive needs. We must remember that the teeth were put there for some very good purpose. Good, sound teeth are necessary, particularly in convalescent periods, and when you rob the patient of his dentition, in many cases you have removed one of the most important factors neces-

*The second of a series of papers under the general heading "A Symposium on Oral Sepsis from the Physician's Viewpoint," given before the Pathodontia Section, First District Dental Society, New York, February 19, 1923.

sary for his recovery. Remember that, when you are implored, or even ordered, to remove teeth which are very essential for the proper preparation of food. Let us then, in any case, be very certain that removal is more necessary than proper mastication. Even when patients are willing to eat artificially prepared food, we must realize that when food is improperly prepared in the buccal cavity, it is not fully digested in any part of the tract. As Dr. Einhorn will tell you, the taking of an artificially prepared purée into the stomach is not so good as having normally prepared food pass along in the natural way to a normal digestion.

There is a large group of diseases possibly caused by oral sepsis which we know may be caused by other factors also, and often more commonly, than by infected teeth. I think that this was a point referred to by Dr. Billings when he brought out his work on occult infections. Infected teeth are easily and most efficiently treated, but remember that they are not the most common cause of the troubles originating from occult infection. They are simply "among those present," as it were.

Cases come to us in which extensive dental depredation has already been committed, and we find that the disease from which the patient is suffering really arose from an infected gall bladder, a chronic appendix, a bad tonsil or an infected sinus—perfectly obvious foci, which the physician, through ignorance or indolence, has not found, and so he has "passed the buck" on to the dentists.

There is prevalent among laymen as well as among professional men the idea that oral sepsis is the cause of almost every disease which exists. It is therefore a very easy matter to persuade the patient that his insanity or moral obliquity or other afflictions are due to his teeth. Partly as a result of crowd psychology, you may form conclusions occasionally which your own good judgment would forbid under other circumstances. There is too great a disposition to overlook even such general diseases as tuberculosis, leucorrhea, etc., which I mention with malice aforethought because each of these has come to my notice in cases where extensive and unnecessary dental operations have been performed. Concerning these diseases even the most theoretical physician can hardly lay claim to oral sepsis as the cause. Just two days ago a patient with effervescent lues, all of whose teeth had been removed, was sent to my office. She pathetically said that her teeth did not give her any trouble, but her mouth did; and the dentist was therefore persuaded to remove all the teeth.

There is too great a tendency in this relation to sloppy diagnostic methods. It is so much easier to have someone else remove teeth on a theory of possibility and eventually have someone else blamed for the defects of mastication which follow than to study a case carefully and

make a proper valuation as to whether the patient is really suffering primarily from oral sepsis or from the results of some other source of infection. Oral sepsis is by no means always primary; it is often a result, not a cause.

We are too likely to underestimate the value of therapeutic measures for infections elsewhere in the body and too ready to advise the easy, widespread extractions of the teeth. Even though oral sepsis may be the primary etiological factor in any case, it is rarely that the mere removal of this point of infection cures the case. It still requires, without exception, painstaking treatment. I feel very deeply that the physician should send his patient to the dentist for an opinion and that this opinion should be final with him. If the dentist says that certain teeth are irreparably diseased and are likely to cause serious general disease, and that removals will not seriously cripple mastication; if the physician knows that grave disease may indeed follow this condition, then the extractions should certainly be considered. But I think I should resent it if I were a dentist and the physician said to me, "You should do this or that operation."

Particularly would I urge you to consider the preservation of dental efficiency as far as possible in such diseases as tuberculosis, anemia, diabetes, and nephritis, all these being disease conditions in which the proper preparation of food is of the utmost importance. Although you are very clever at substituting artificial for natural teeth, I do not believe that the artificial teeth are physiologically better than an efficient natural set. I am told by excellent dentists that there are cases in which artificial teeth cannot be satisfactorily employed, and I know that many metabolic diseases, such as diabetes and nephritis, cannot be well treated when the patient is robbed of the ability to prepare his food properly.

Then there is the ill-advised shock of dental operations to be considered in many cases, especially in leukemia, general septicemia, rheumatic fever, purpura, chorea, etc. Last week I saw a patient who had concluded that her trouble was due to oral sepsis and had persuaded her dentist to extract all her teeth. She was anemic, dyspeptic, developed a purpuric state and nearly died, being saved only by a very hurried transfusion. Extraction is a shock which perhaps you at the other end of the tool may not realize as much as the person at the business end of the forceps, and it should not be inflicted indiscriminately or without due consideration, although I believe it very often is, especially in septic and other haemic diseases. The results of operations, on many patients, even when carried out under the most careful and skilful procedure, particularly on patients suffering from serious general disease, may cause an osteomyelitis, embolism, or a

phlebitis, and still other conditions which may follow ill-advised operations made at an indiscreet period.

Let us not take too seriously the patient who is absolutely cured of insanity or kleptomania or some other mysterious disease by the removal of a tooth. I read today an amusing story of Cabeza de Vaca, one of the first Spanish explorers in this country, which illustrates this point. He was forced, under pain of death, to treat some sick Indians whom he met on his travels. He treated them with the faith cure and by prayer, on the principle that it could do no harm. So he blessed them, and he cured so many cases and his fame spread so widely that he finally came to believe in himself. Faith cure still works, fortunately for you and me.

Bona fide cures, of course, take place in suitably selected persons after the removal of foci of infection. Please do not understand that I do not believe this is so. But there are too many cases where the blame is placed solely upon the teeth, and extractions follow which are unnecessary. The character of the operation, the time, and the extent, should always be determined by the surgeon or dentist. Always remember that the patient is very dependent for his welfare upon a proper and efficient dentition. After-care of the mouth following extractions in any instance is necessary, and it is almost universal that the patient should receive general treatment also. And there again the beneficial results which follow teamwork between dentists and physicians are well illustrated. We must work together.

It is said of the American Army in the last war that it was the hardiest army that ever trod the earth. I believe that it is admitted that this was due in no inconsiderable part to the efficiency of their dental preparation and care. It was said of the 77th Division that from a dental standpoint it was the best group of men that was ever known. The reason for this was the work done for them in preventive dentistry. This is what we should seek—the prevention of oral sepsis. We were continually being told in France that a chief reason why we did not get those terrible conditions following bad injuries to the jaw so commonly as did our Allies was because of the splendid treatment the men had received for their mouths before getting the injuries.

The best thing of all is that we have learned to work together but I still think the dentist should not allow himself to be pushed off the map as to what should be done in the mouth. Let the physician tell you what may be done in regard to the general health, but let the dentist hold fast to his own judgment as to what should be done in the treatment of the mouth, and especially in the treatment of oral sepsis.

47 West 9th Street.

Survey of the Narcotic Problem

By Carleton Simon, M.D.

Special Deputy Police Commissioner in charge of Narcotic Division of the New York City Police Department, before the Medical Society of the County of New York, January 28, 1924, at New York Academy of Medicine.

(*Continued from October*)

Prescribing of Narcotics

As to the quantity of narcotics used and prescribed by physicians and dentists in the State of New York as an index to the legitimate demand per capita, replies to the questionnaires give the following:

Amount of Morphine and Heroin Prescribed in 1922 by 7,559, or 51.37 Per Cent of the Physicians of This State

Morphine: 1,392 ounces, or 43,291 grams.

Heroin: 30 ounces, or 922 grams.

The basis of 1,392 ounces, or 43,291.2 grams, of morphine used by 7,559 physicians establishes an average of 5.727 grams of morphine per physician, which, when applied to 14,715 physicians in the entire State, gives a total of 2,709.7 ounces, or 84,272 grams, of morphine prescribed by the physicians of this State during the year 1922.

On this basis also, 30 ounces, or 933 grams of heroin prescribed by 7,559 physicians would give an average of 0.1234 gram per physician, which, when applied to 14,715 physicians in the entire State, gives a total of 58.38 ounces, or 1,815.83 grams of heroin prescribed by the physicians of this State during the year 1922.

Of the physicians who answered the question, 5,362 stated they did not prescribe any heroin in 1922.

Is Heroin Necessary?

To the question, "Do you believe heroin necessary in your practice?" the replies were divided as follows:

No, 5,715. Yes, 1,201. Occasional, 404. Unanswered, 239.

Under occasional use we have grouped a variety of replies which may be best expressed by that word. Most of those prescribing heroin believed it to possess special qualities useful in the treatment of bronchial conditions. Of the large percentage of practitioners answering this inquiry approximately 80 per cent deemed heroin a needless addition to their therapeutic armamentarium.

While so small a quantity of heroin was legitimately used by physicians in this State, more heroin is used by the criminal narcotic addicts in New York City than all other narcotic drugs combined. Ninety-five per cent of the criminal drug addicts arrested in New York

City use heroin regularly, adding cocaine occasionally or whenever they can get it, and resorting to morphine only when they cannot get heroin. Placing the customers of the illicit narcotic street venders in New York City at a minimum of 10,000, based upon arrest statistics, using at the average of 10 grains per day, we have 100,000 grains daily or 36,500,000 grains or 76,041 ounces as the yearly quantity of heroin used by the criminal drug addict in New York City alone, against 58 ounces computed as being legitimately prescribed by the entire medical profession of the State. That is why I am seeking light on the subject, trying to find a way to shut off this flow, at the same time respecting the rights of the physicians to prescribe.

These replies show that the majority of the addiction cases treated by the physicians are purely medical cases; that these patients require narcotics and are exempt under the Harrison Drug Act or are being treated by the physicians in good faith for their cure and not addicts being supplied for their comfort.

As previously noted, this State census shows that these answers represent 51.37 per cent of the physicians of the entire State of New York who have treated 775 medical addicts in one year.

From these replies I arrive at the conclusion that at this ratio the number of medical addicts in the State of New York is 1,509.

Thus it is definitely shown that the medical narcotic addicts whose number can be estimated and who require narcotics because of physical ailments is far in the minority in comparison with those whose numbers are ascertainable through arrest and whose activity is absolutely a police problem.

The questionnaire was sent out last June. Coincidentally, the Portuguese delegate to the advisory committee on traffic in opium of the League of Nations on June 5, 1923, proposed "that in view of the existing medical evidence, tending to show the possibility of completely doing away with the use of heroin in medical and surgical practice, that the committee recommended to request our Government to appoint a committee of inquiry with a view of ascertaining the possibility of completely abolishing the manufacturing of heroin and its use, and in the event of the committee of inquiry deciding that manufacturing of heroin could not be done away with entirely, to inquire into its use being limited to certain types of cases, or in particular types of cases."

In the United States Army the use of heroin has been interdicted by order of the Surgeon General.

In the United States Public Health Service the use of heroin has been interdicted by the order of the Surgeon General.

In a large number of public hospitals the use of heroin has been interdicted by order of medical boards and superintendents.

The health commissioners of Chicago and of New York City simultaneously expressed themselves:

"Stop the use of heroin in all hospitals. It serves no purpose that other agents cannot accomplish as effectively and without the attendant possibility of disaster."

Cocaine and Its Substitutes

Many physicians and dentists in a desire to offset the dangers of cocaine to their patients and to avoid the entanglement and the annoyance connected with complying to the Harrison Drug Act have gradually substituted in their practice non-habit-forming synthetic compounds having otherwise similar attributes to cocaine. Chief among these has been novocain, also known in this country as procaine.

Another question was: "Do you believe cocaine can be advantageously replaced by non-habit-forming drugs, such as novocain or similar preparation?" The replies were as indicated in Table 4:

Table 4.—"Is Cocaine Replaceable?"

	Yes	No	Occasionally	Unanswered
Physicians .	5,158	1,280	534	587
Dentists ...	3,770	253	277	35

Another question which was asked of physicians and dentists was: "Amount of cocaine used in 1922?"

The cards returned by 7,559, or 51.37 per cent, of the physicians and 4,335, or 50.89 per cent, of the dentists showed the following:

Physicians: 610 ounces, or 18,971 grams.

Dentists: 1,716 ounces, or 53,368 grams.

An analysis of the replies received from physicians as to the need for cocaine and the possibility of substituting some non-habit-forming synthetic product, such as novocain, shows that only approximately 17 per cent of those answering this question considered cocaine indispensable. The majority of this 17 per cent deemed cocaine necessary in the treatment of nose and throat lesions, and there were also some ophthalmologists and genito-urinary specialists who preferred cocaine where anesthesia of the eye membranes and of the urethral tract is an essential to examination and treatment. Most of the practitioners of these three groups use cocaine topically only, rarely, if ever, prescribing it. Thus it will be noted that from these angles of medical practice the danger of cocaine habit forming is negligible. It will be further noted that about 83 per cent of the physicians answering the inquiry of this point expressed the belief that cocaine can be advantageously replaced by non-habit-forming drugs, such as novocain or similar preparations.

Members of the dental profession were even more favorably inclined to substitute novocain and like products for cocaine, there being only 6 per cent of those answering who believed cocaine indispensable.

Conclusions

(1) The narcotic addict exists.

(2) His addiction is the result of physical or medical causes in only 2 per cent of all cases among the thousands observed by the police.

(3) In those few instances of true medical addiction treated by the medical profession in the State of New York for the year 1922 the great preponderance show that they were treated for disease and not for drug addiction.

(4) Because of the fact that addiction has its origin or is coupled with crime or with criminal environment in 98 per cent of the police cases, the problem is in the category of criminology, and therefore comes within the province of the police.

(5) The quantity of the various habit-forming drugs purchased by physicians and by dentists is well within the needs of their patients. These legitimate amounts represent but an infinitesimal proportion of what is trafficked in through underground channels.

(6) Heroin has no specific uses in medicine in the opinion of approximately 80 per cent of the practitioners consulted.

(7) Cocaine is useful in medical practice as a topical anesthetic in various conditions of the eye, the nose, the throat, and the genito-urinary parts. Eighty-three per cent of the physicians and 94 per cent of the dentists, whose answers are to hand, are of the opinion that cocaine can be dispensed with in practice through the use of novocain or other non-habit-forming synthetic compounds.

(8) Underworld addicts have a decided preference for heroin and cocaine.

(9) The international phase of this question is largely dependent upon what the laboratory is likely to accomplish in the near future in the preparation of habit-forming drugs synthetically and the education of the profession in the use and selection of non-habit-forming substitutes. Sooner or later heroin, cocaine, and morphine will be possible of manufacture universally at a far less cost than that which now obtains through growth and treatment of the plants from which they are derived. When that time comes supply and demand can be regulated in conformity with economic conditions, plus international agreement as to traffic in these drugs.

(10) The sharp distinction between the medical addict and the underworld addict will clear up many of the problems confronting the medical profession and the law-enforcing agencies. This will also

destroy many ramifications of the leakage from legitimate sources to the underground criminal strata. There is a whole-hearted cooperation on the part of every State and local governmental department, executive, legislative, and judicial, to safeguard the interests of the public.

In the city of New York narcotism has decidedly decreased during the past three years. This is evidenced by the fact that a beginner is now rarely found among the addicts recently apprehended. Constant vigilance is necessary, for relaxation on the part of the police would result in the immediate influx into this city of thousands of addicts from all over the country and addiction would claim many new victims.

Only about 10 per cent of the addicts arrested by the police are women. The percentage of female to male addicts is, however, much greater. They are not so liable to arrest, as comparatively few of them personally make their purchases on the street. It is delivered to them or bought usually through some male addict.

Evidence of the control of the situation is shown by the statistics of the ages of addicts. In 1921, when we were several months without a suitable narcotic law in New York City, a large number of individuals became addicts, mostly in the ages of 18, 19, and 20, and the peak age then was around 25 years; that is to say, there were more addicts giving the age of 25 years than any other age. In 1922 this peak age was 27 years, while this year the ages 27 and 28 are almost equal.

Summary

Figures received from 7,559 physicians, or 51.37 per cent of the total physicians in the State of New York (14,715), and figures received from 4,335 dentists, or 60.89 per cent of the total in the State of New York (7,119):

Morphine prescribed in 1922 (physicians), 1,392 ounces, or 43,296 grams.

Heroin prescribed in 1922 (physicians), 30 ounces, or 933 grams.

Cocaine prescribed in 1922 (physicians), 610 ounces, or 18,971 grams.

Cocaine prescribed in 1922 (dentists), 1,716 ounces, or 53,368 grams.

Number of narcotic addicts treated in 1923 was 775.

Do you believe heroin necessary in your practice?

Physicians:

Yes	1,201
No	5,711
Occasionally	404
Unanswered	239

Do you believe cocaine can be advantageously replaced by non-habit-forming synthetic drugs, such as novocain or similar preparations?

	Yes	No	Occasionally	Unanswered
Physicians .	5,158	1,280	534	587
Dentists ...	3,770	253	277	35

Applied pro rata for all physicians and dentists in New York State (population 10,384,144).

Morphine prescribed in 1922 (physicians), 2,709 ounces, or 84,272 grams.

Heroin prescribed in 1922 (physicians), 58 ounces, or 1,816 grams.

Cocaine prescribed in 1922 (physicians), 1,187 ounces, or 36,931 grams.

Cocaine used in 1922 (dentists), 2,818 ounces, or 87,639 grams.

Number of narcotic addicts treated in 1922, 1,509.

The questionnaire to which reference is made in this paper has added to our available knowledge of this subject. The medical and dental professions have given splendid cooperation, for which I am deeply appreciative. Their aid in securing the data, comprising expressions of opinion based upon professional experience, utilizable for lay purposes, will be employed for the purpose of solving some of the questions of the narcotic menace.

We may hope, then, that future generations may be free of a curse which has been interlinked with criminality throughout the ages.

Psychopathology and Its Relation to Dental Problems

By P. N., D.D.S. (Name known to Editor but withheld on request)

Some time ago I was fortunate enough to attend a meeting of a medical society where a well-known physician spoke on *The Relation of Psychopathology to the General Practice of Medicine.* This discourse left certain impressions with me; hence the above title.

Most of us will concede that the practice of general dentistry is a specialty in so far as it is limited to operations of the upper and lower maxillae; I hesitate to state "oral cavity" because that would include even a wider field. Therefore, it is not surprising that after leaving college the average dentist loses interest in reading dental or medical literature which does not directly pertain to the maxillary or mandibular processes and their contents—the thirty-two teeth. Yet is it fair to ourselves or to our patients? Permit me to state the question in a different way. Just because a physician limits his practice to ear, eye, nose and throat, should he discontinue reading articles and books pertaining to the general practice of medicine?

This subject, as a minister might say, "covers a multitude of sins," and I cannot hope to embrace all of it in this article. Therefore, it will be my humble endeavor to confine myself to certain limitations. I propose to cite a few concrete examples to support my contention that it pays to read, study and think widely about general medical and dental problems, not only because of the fact that it makes one better educated and more liberal-minded, but because the knowledge gained thereby can be applied to everyday practice of dentistry. Psychopathology is a subject with a wide sphere; and yet it is not so remote from dentistry as to be unworthy of notice.

The dictionary defines psychology as the science of the powers and functions of the human soul (or mind). Therefore, when a patient enters the dental office in fear and trembling, ready to faint and on the verge of collapse, it is fair to assume that he or she is in a psychopathologic state. Such patients rarely call alone. They are generally accompanied by another person, and sometimes by a regiment of persons! When you have succeeded in having the individual seated in the dental chair the fear and trembling still persists; and it might tax your patience a little to convince the patient that the insertion of an ordinary mouth mirror will not cause any pain. There is generally some good reason for this case of psychopathology which calls for human sympathy and understanding.

Permit me to cite a case from my own experience, which no doubt has been the experience of every dentist at some time or other. The

patient was a man, aged thirty, stout, of weight about 250 pounds, with flabby muscles, high blood pressure, extremely nervous, teeth having the characteristic symptoms of pyorrhea, and an abscessed right lower second molar was present with considerable pain and inflammation of the adjoining area. The cheek was quite swollen. He was accompanied by his wife, and it took quite a little persuasion on her part, as well as on my own, to convince him that I was not going to apply the forceps immediately, but only to make a careful examination. He sat in the chair watching every movement of my hand with the remark that he was sure I was going to hurt him, and that there was no such thing as painless dentistry. I inquired as to the reason for his belief, to which he replied that about ten years before (the last time he was in a dentist's chair) a dentist had "almost murdered" him in the course of pulling his teeth, etc., and since then he had lost faith in dentistry.

In this case nitrous oxide and oxygen was contra-indicated on account of the high blood pressure; a mandibular injection for conductive anesthesia could not be given, as the inflammation extended practically to the retro-molar triangle back of the lower third molar; and, of course, ordinary infiltration anesthesia was out of the question. Ethyl-chloride spray could be used locally with some measure of success, but unfortunately I had discontinued using this anesthetic some time before and did not have any in the office. If I had had the latter and had used it, it is my firm belief that the psychopathologic state of the patient would not have permitted its use. Assuming that any local anesthetic had been used and the tooth had been painlessly extracted, the patient would still swear to the fact that pain was present in the operation. (By the way, I have ascertained that the same individual had grabbed the arm of the previous dentist while the latter was in the act of extracting and thereby helped to break the tooth.)

If anything is to be accomplished with a patient exhibiting the characteristics mentioned above, the first important step is to endeavor to change his mental attitude, otherwise, the operator is at a great disadvantage from the start.

I informed the patient that I was not going to extract the tooth or, in fact, do anything with it at that sitting beyond giving him some instructions to reduce the swelling and relieve his pain. I instructed him to apply an ice bag every hour for the rest of the day, to hold it in place for a period of at least fifteen minutes, and to apply capsicum pads locally and as hot as he could stand them between the cheek and the gum. I also told him to take a physic the following morning upon rising and two tablets of a strong sedative an hour before seeing me. In order to ensure him a good night's sleep I prescribed the following formula to be taken until bedtime.

℞

Caffeine Citras grs. SS
Phenacetin grs. II
Acid aceto-salicylic grs. III
Misce Fial Capsule I
D. J. D. No. X
Sig. One at once, followed by one every 2 hrs.

The following morning the patient appeared at my office. The swelling had been considerably reduced and his confidence in dentistry had been somewhat restored.

I informed him that I was going to extract his tooth, and rather than give him a lot of anesthetic (or "dope," as I expressed it to this particular individual) he could easily stand a little pain, which would be nothing in comparison with what he had been through. Besides, it would take less than a minute, and he would feel wonderfully relieved afterward. I also insisted that he must hold on to the sides of the chair tightly, shut his eyes so as not to see the instrument and open his mouth wide. I then applied the lower molar forcep and extracted the tooth without any anesthetic.

The operation in itself did not amount to anything in the eyes of the patient or myself. But I wish to place emphasis on the fact that it was mainly because his mind was prepared for it in advance, thus insuring its simplicity and success. In other words, the psychopathology of the patient was altered through mental suggestion and the aid of sedatives.

Profitable Fun

(EDITOR'S NOTE.—Read this, and you will know why C. N. Johnson is the best loved man in the dental profession.—L. W. D.)

Fun just for the fun of it is no fun at all. Real fun consists in doing something which, while having diversion in it, is at the same time useful. To produce something where before there had been nothing is real fun. To pull a burdock up by the roots, and plant a grain of wheat is fun. To build a bird house and see the songsters make a home in it is fun. To scratch the surface of the soil and scatter flower seeds, and see them come up and blossom and glorify the earth is fun. To make a dog-house for Towser and see him snuggle up in it at night is fun. To bed Dobbin down with a thick mat of straw, and come out next morning and find him rested and pawing for his oats, and see him plunge his nose deep into the golden grain and begin to munch greedily and contentedly—little recks he of thorough mastication—this is fun. To walk down in the pasture lot and feel the soft turf springing under your feet at every step and round up the cows and drive them home to be milked—this is fun.

To raise the hood of an automobile and wipe off the engine, to clean the spark-plugs, to oil the bearings, to drain the crank-case and see that new oil is poured in—just the right amount—to fill the gasoline tank, and turn up the grease-cups, to tighten the nuts everywhere and put some air in the tires, to take a soft cloth and polish everything clean and bright, and then to start the engine and hear it hum rhythmically without a miss—that is fun. To roll along on a country road and see the changing landscape and hear the exclamations of delight from the dear ones in the tonneau, to overtake a tired barefoot boy with flapping hat-brim, and pick him up and take him wide-eyed to his destination—that is fun.

To wheel a baby-carriage and watch deft feminine fingers tuck the wraps around a tiny, tender, chubby bit of humanity is fun. To go a trifle out of your way to carry a basket of fruit or a bouquet of flowers to a sick friend; to write a letter of congratulation to one who has succeeded, or a letter of sympathy to one who has failed; to say a word of cheer to the despondent or a word of warning to the wayward; to put your arm around a fallen brother and lift him hopefully to his feet; to make a chum of one younger than yourself and enter heartily and sympathetically into his aspirations—to help him plan for the future and then to see that his plans are made to mature; to direct the footsteps of youth and smooth the pebbly path of old age; to slay a slander and leave it prone and innocuous at your feet; to check a bit of gossip before it becomes current, and to send a good word to the

uttermost ends of the earth; to speak well of people if you speak at all; to do a kindly act and not let anybody know of it; to get into the thick of things whenever wrong is being done, and to stay in till the wrong is righted; to play with children, and commune with sages; to harbor a favor and forget an injury; to draw the line rigidly and resolutely on your own behavior, and to be lenient with the behavior of others; to be stern with yourself and forgiving with your fellows; to magnify the joys of life, and belittle the trials; to play the game manfully and comply with the rules; to accept defeat with as good a grace as if it were a victory; to laugh instead of weep; to be one with nature in all her myriad moods, and to enter wholly into the great scheme of the universe of which you are such an infinitesimal part—all of this is fun —real fun. And it is fun that is profitable.

—*Oral Health.*

McDowell County (W. Va.) Dental Clinic

The work of the McDowell County Dental Clinic, under the direction of Dr. G. T. Epling, becomes a matter of especial interest.

Dr. Epling states that he has already launched the work, having held clinics in 22 schools in Sandy River district, where sessions are commenced early, and having completed the work in ten schools.

It will be noted that since the work has been organized and an efficient system worked out it has been possible to reduce the cost to the taxpayers. Last year the levy for this work was seven cents. This year the levy is 5½ cents. The total cost of the clinic last year was in the neighborhood of $55,000. This year the cost will be about $43,000. This does not mean that the work will be slurred over, it is only that now that the work has gotten under way it is possible to reduce the cost.

Children Under School Age

Each year the dental clinic examines every child of school age in the county. Children under school age are also given attention by the clinic if parents so desire. Last year hundreds of such children were treated.

All necessary dental work is done at the time the clinic is held. No work is passed up to await some more convenient day. The children are taken in turn, the teeth examined and treatment begun and continued until finished. Sometimes special treatment, with the use of special drugs, is necessary. This is frequently costly. Sometimes it is necessary to perform an operation.

Where statistics have been kept it has been noted that the dental

clinic has brought about a great improvement in the general health of school children. In one school in the county, where statistics was kept, the health of the children was improved 50 per cent.

Rich or poor, white or colored, the children are given the same treatment, and such careful and conscientious work it has been as to cause universal satisfaction.

The report for the past fiscal year follows:

Dental work performed by the Dentists and Hygienists of McDowell County Dental Clinic, during the fiscal year ending June 30, 1924.

White Children—		
Total number of children examined and treated	11,561	
Total number of temporary fillings		8,580
Total number of permanent fillings		9,633
Total number of temporary extractions		2,103
Permanent extractions		415
Total number of cleanings		8,415
Total number of treatments		14,909
		44,055
Colored Children—		
Total number of children examined and treated	3,560	
Total number of temporary fillings		2,660
Total number of permanent fillings		5,813
Total number of temporary extractions		1,198
Total number of permanent extractions		261
Total number of cleanings		3,633
Total number of treatments		8,381
		21,946
Total number children examined and treated		15,121
Total number of operations performed		66,001

In addition to the above dental work, the McDowell County Dental Clinic had a number of special cases where it was necessary to give special treatment and use special drugs in order to relieve patients, which were expensive to the Clinic.

Red Cross Work Since the Armistice

The American Red Cross, Washington, D. C.

Those who believe that the usefulness of the American Red Cross ended with the signing of the Armistice in 1918—and there are still many who do believe it—would do well to consider three things.

First. The Red Cross is chartered by Congress to "continue and carry on a system of national and international relief in time of peace and to apply the same in mitigating the sufferings caused by pestilence, famine, fire, floods and other great calamities, and to devise and carry on measures for preventing the same." This in addition to its work in war.

Second. Although it is a chartered agent of the Government, it is at the same time a voluntary organization, made up of the millions who annually join or renew their memberships.

Third. The need for its services grows from year to year.

The first two points need no elucidation. Regarding the third it should be enough to point out that the first half of 1924 has shown more disasters drawing upon the relief resources of the society than any similar period in its history. During that period assistance to the victims from Red Cross funds has been extended in not less than 35 localities. Floods, tornadoes, explosions, fires and epidemics in the United States and earthquakes in foreign lands called for $200,000 direct from the national Red Cross treasury, while Red Cross Chapters and individuals contributed to relief work much more than that amount.

In addition to these major operations there were numerous smaller disasters in which relief was given by the local Red Cross Chapter without assistance from National Headquarters.

The Red Cross is still carrying out an extensive work of relief and reconstruction among the victims of the Lorain, Ohio, tornado of June 28, where nearly $500,000 already has been raised and more is in sight for the re-establishment of the stricken territory and its people. Forty trained Red Cross workers are covering the entire tornado area and attending to every emergency need of the people who survived.

The disaster in Ohio caused the most widespread destruction of any listed by the Red Cross this year, although other calamities of the half year have recorded greater death lists. Relief activities of the Red Cross were almost wholly confined to the United States, except for earthquakes in Ecuador, Costa Rica and Colombia, and relief of famine sufferers in Albania.

The list of disasters from January 1 to June 30, where human suffering was relieved by the Red Cross, is as follows:

Tornadoes—South Carolina; Chatham county, N. C.; Martin county, N. C.; Harris county, Ga.; Meriwether county, Ga.; Tunica,

Miss.; Eastern Oklahoma, and Lorain, Ohio; Shawnee, Okla.; Mississippi; Marion county, Ala.; Cascade county, Mont.

Cloudburst—Carter county, Tenn.

Windstorms—Dickinson, N. D. and sections of South Dakota, also in Minnesota.

Floods—Crosby, Minn. (mine); Cumberland, Md.; Belle Fouche, S. D.; Bitter Creek, Wyo.; Harpers Ferry, W. Va.

Explosions—Pekin, Ill. (starch works); Johnson City, Ill.; Welch, W. Va. (mine); Benwood, W. Va. (mine).

Fires—Lindonville, Vt.; Montpelier, Vt.; Kalama, Wash.

The Red Cross also extended assistance in funds and trained workers at a serious typhoid epidemic in Lincoln Memorial University, Tenn., and during the Arizona quarantine against the foot and mouth disease. The North Carolina and Ohio tornadoes called out the new Mobile Disaster Relief Unit recently organized by the American Red Cross, which responded at once with trained disaster relief administrators and workers and applied relief immediately where calls were most urgent.

Another noteworthy phase of this year's disaster record is the fact that localities not commonly subject to nature's wrath have been visited by calamity. Most of the disasters occurred east of the Mississippi.

Then there are other peace-time activities that must be carried on. There is, for instance, First Aid and Life Saving. The First Aid course was completed by 14,500 persons during the past year, and 137,000 were reached with demonstrations by the First Aid Car. More than 49,000 men, women and youths have been trained to rescue and revive the drowning, and volunteer life-saving corps have been formed at many of our beaches and water fronts.

Within the year 974 Red Cross public health nurses have aided in the care of the sick, guarded the health of the children and fostered understanding of personal and community hygiene. Sixty-five thousand women and girls have taken the Red Cross course in Home Hygiene and Care of the Sick; 135,000 children and 10,000 women have been taught the proper uses of foods, the principles of nutrition and food selection.

Then there are the disabled veterans of the World War, service to whom continues to be the first obligation and duty of the Red Cross. Since the Armistice it has expended $50,000,000 for services to men of the Army and Navy and World War veterans. It is now assisting more than 100,000 disabled veterans and their families each month. To 180,000 soldiers, sailors and marines on active duty it is giving the same help it gave during the war. And it has 41,000 nurses enrolled for emergency—war, disaster, epidemic.

In 500 communities the Red Cross Chapter is the only family welfare agencies.

And last, but by no means least, in the Junior Red Cross nearly five and a half million enrolled school children are learning the value of service. With the children of forty other countries they are creating bonds of mutual friendship and understanding.

All the Red Cross asks of you is that you give a dollar for your 1925 membership dues and sign your name during the Annual Roll Call, to be held this year from the 11th to the 27th of November. Not a great sacrifice for you to make, is it? But you will be doing your share to carry on the greatest humanitarian work of modern times.

Red Cross Roll Call

Volunteer Roll Call groups headed by outstanding leaders in the dental profession and dental supply trade are functioning to enlist the maximum response throughout this field in New York City to the annual Red Cross Roll Call opening November 11, Armistice Day, for funds to maintain the organization's relief work and public health program.

Dr. Arthur H. Merritt, assisted by a committee of other prominent dentists of the city, heads as chairman a special *Dentists* group, and Leroy Frantz, vice-president of The Dentists' Supply Co., is chairman of a *Dental Supplies* group. These groups are among the first 100 groups formed in accordance with the campaign plan of committee organization of the city into various industrial, banking and professional groups which will carry the Roll Call appeal into every branch of industry. It is anticipated that by the opening of the Roll Call more than 175 such groups will be functioning, representing a total of some 1400 volunteer chairmen and committeemen.

Plans for comprehensive activity throughout their groups are already in operation under the leadership of Dr. Merritt and Mr. Frantz, and they have set as their goal a 100 per cent enrollment with a Red Cross button on every person.

Aid for the ex-service man and his dependents constitutes the major part of the Red Cross program in New York. More than $39,400 was expended last year in this work, which includes legal assistance, money loans, and medical attention, and a total of 4,500 cases were handled. Other outstanding activities in New York are the disaster relief and the public health program under which more than 600,000 surgical dressings were supplied in the past twelve months to sixteen local hospitals, and which also covers nursing service, first aid, and work in home hygiene and care of the sick.

Dentistry a Century Ago

By C. Edgar Thomas, London, England

It has often been said—and not without justice—that comparisons are odious. But this statement must not be accepted too literally, for comparisons are absolutely indispensable if we are to measure up the profit and loss accounts of men and things throughout the ages. An estimate as to improvement or deterioration in any direction cannot be gauged without a comparison—a comparison of the old and the new—and therefore whoever coined the phrase would probably have been the first to admit the value and necessity of comparisons in the abstract. What is more likely to have been meant is that comparisons are odious from a sentimental standpoint, for in whatever direction they are applied they must of necessity open up retrospect, and retrospect is usually fatal to a sentimental turn of mind. This, however, is by way of disgression, for a comparison of the dental methods obtaining a century ago with the up-to-date *modus operandi* that we enjoy today, although possibly odious from one standpoint, is certainly not so from a sentimental point of view, as any poor sufferer from toothache would readily admit!

In the year 1819 appeared Volume XXXV of the *Cyclopaedia; or Universal Dictionary of Arts, Sciences, and Literature,* edited by the famous encyclopedist, Abraham Rees, D.D., F.R.S., F.L.S., etc. This volume contained an article on *Teeth,* which, now viewed from a distance of over a hundred years, can be read in its true perspective. It is much too long to reprint, but one or two of the more interesting passages have been extracted and are here submitted to the reader without prejudice, and as far as possible without comment, for an article of this description is best left to speak for itself.

The author, Rees, it may be added, was in many respects a remarkable person. Of Welsh descent, as his name implies, he subsequently became resident tutor at the Independent Academy at Hoxton and tutor in Hebrew and mathematics at Hackney College from 1786 to 1796. From 1783 to 1825 he was pastor to the Old Jewry Congregation, and in the Dissenting world of London held a position of the first distinction. Another thing, small in itself, but nevertheless marking an epoch, was the fact that Rees was the last of the London Dissenting ministers to officiate in a wig.

The remarks concerning the *Insertion of Teeth* are interesting, as follows: "There are various species of this operation, but all of which may be included under the following heads: 1. The insertion of a healthy tooth proper. When a tooth that has been extracted, or beaten out, appears to be entirely sound, it is to be immediately replaced in

the socket, and tied with a thread to the adjacent teeth. Sometimes it spontaneously becomes fixed again, if care be taken to use an astringent gargle with a view of making the gum contract. 2. The insertion of a tooth proper that has a carious fang. When the tooth, which has been removed from the alveoli, is merely carious in the fang, it may be replaced again, after the carious part has been filed away. 3. The insertion of a proper tooth which has a caries of its body or crown. When a very small portion of the crown is carious, it may be removed with a file, and the tooth can then be put in its socket again. But if the whole body be diseased, it may be cut off transversely from the root; a small hole may be drilled across the latter part, and, with the help of a golden wire, an artificial crown or body, having also a tranverse hole for the passage of the wire, may be fastened to the root. In this state the tooth may be replaced. 4. The insertion of a tooth taken from the mouth of another living subject, or from a dead subject. The person to whom the tooth is to be transferred should not be above the age of forty; but the subject from whom it is to be taken ought not to be more than four-and twenty. The transplanted tooth should belong to the same jaw and side of the face, and be of the same shape and size, as the tooth that is extracted. The canal of the tooth that is to be inserted must be closed with gold; and the tooth must be everywhere rendered free from inequalities, so that it may be the more likely to adhere. 5. The insertion of an artificial tooth. The form and size which should be given to the artificial tooth must be determined by a model of soft red wax, which has been pressed into the gap made by the lost tooth. In order that the white color of the artificial tooth may correspond to the light yellowish color of the rest of the teeth, the new tooth should be macerated in strong coffee, or in the lees of red wine.

"Artificial teeth ought to be made of ivory, or of the tooth of the hippopotamus. Each of them should be grooved on both sides, and perforated transversely, so as to admit of being tied to the neighboring teeth. The nooses of two threads are to be fastened on the neighboring teeth, and the ends having been drawn transversely through the hole of the artificial tooth, and there made to decussate, they are to be tied in a surgeon's knot. The tooth having been placed in the socket, the threads betwixt the artificial and old teeth must be tightened and made fast. Lastly, an astringent gargle must be used for a few days.

"6. The insertion of several artificial teeth. When two, three, or a larger number of contiguous teeth are wanting, an equal number must be formed of one piece of ivory, or other substance, and fastened at once to the neighboring teeth. 7. The insertion of a whole set of artificial teeth. When all the teeth of the upper and lower jaws are lost, a complete set may be fixed on the margins of the alveolary arches. Should any of the natural teeth remain, they may often be of

great assistance, in rendering the lodgment of the artificial ones more firm and secure. When the whole, or the greater part, of the teeth of either jaw is lost, an artificial set may also be inserted.

"The custom of wearing ivory teeth, and of binding them in with a gold wire, is very ancient; Lucian and Martial speak of it as practised among the Romans. But ligatures of wire have been found to hurt the natural teeth, with which the artificial are connected; whereas silken twist cannot affect them to any considerable degree for several years."

Then follows the recipe for making artificial teeth "which will never grow yellow," the composition of which consisted of white wax granulated and melted "with a little gum elemi," and the addition of powder of white mastich, coral, or pearl. "Thus whole sets may be made for one or both jaws, so well fitted to admit of the necessary motions, and so conveniently retained in their proper situation, by means of springs, that they will answer every purpose of natural teeth, and may be taken out, cleansed, and replaced by the patient himself with great ease."

As a measure of guarding against the loss of the enamel of the teeth, it was recommended that the teeth should be covered at night by a thin gold plate, which would effectively protect them from the ill consequences of gnashing, etc., while the directions for cleaning the teeth are remarkable for containing no mention of the toothbrush! "This species of foulness is easily removed by washing the mouth every day with cold water, and the teeth with a bit of rag, the finger, or a wet sponge."

The directions for cleaning are, nevertheless, singularly minute: "In persons whose teeth are perfectly sound, it is only necessary to wash their mouths every morning with water that has had the chill taken off it, and that contains a few drops of the spirit of lavender; the mucus being wiped from the teeth with a bit of rag, or sponge. The same should also be done after meals, and the fragments of meat lodged between the teeth must be removed with a toothpick, which instrument some recommend to be made of juniper wood. But in persons in whom a deposition of tartar readily takes place, the tartar ought to be removed with a toothscraper, and the teeth well cleaned every week with tooth powder. Charcoal or carbon is used for cleaning the teeth, and the best is made from the shell of the cocoanut. We are informed by historians that the ladies among the ancient Britons used the charcoal made with the wood of the common hazelnut for this purpose."

Mollities, or Preternatural Softness of the Teeth is thus dilated upon: "This disease is so remarkable a softness of the substance of the teeth that it can almost be pressed together by the fingers. The proximate cause is said to be either too great a quantity of the gluten, which connects the earthy particles together, or else a deficiency of

the earth. The species are: 1. Softness of a milk-tooth. Plenck extracted from a girl of seven years of age a canine milk-tooth of the lower jaw, which was livid and soft, like cartilage, and was compressible by the fingers, especially at the fang. 2. Softness of the teeth from sarcostosis of the fang. Sometimes the fang of the tooth is absorbed, and a fungous substance fills up its place. This case has been absurdly instanced as a specimen of mollities of the teeth. 3. Softness of the teeth from scurvy. It is asserted that in the scurvy the teeth have been sometimes softened and enlarged. But such accounts must be incorrect, since they imply a vascular organization of the teeth. It merits attention also that in certain dead subjects, whose bones are all affected by mollities, the teeth are found perfectly hard."

Next we are given some very interesting particulars of the disease described as being *Stupor of the Teeth*—"a very singular sensation in the teeth, which cannot be described by words"—but which, notwithstanding, is! "The proximate cause is a peculiar affection of the nerves of the teeth. With regard to the effects, this annoying sensation prevents mastication, and excites a preternatural secretion of the saliva, while it is exasperated by the entrance of air into the cavity of the mouth. For the most part, the complaint is only of a transient nature. The species are: 1. Stupor of the teeth from eating unripe fruit. Hence we find the affection is often caused by eating sour cherries, currants, gooseberries, etc. This case may be relieved by chewing sweet almonds or applying fomentations to the teeth. 2. Stupor of the teeth from vomiting dark bilious matter from the stomach. The secretions thrown up from the stomach are sometimes of an austere acid kind, and therefore may give rise to this affection of the teeth. Plenck has many times noticed the occurrence in hypochondriacal subjects. The cure demands emetics and absorbents, or milk alkaline remedies. 3. Stupor of the teeth in rickety subjects. The teeth of persons who labor under richitis are, on account of their greater sensibility, particularly exposed to the attack of this complaint. Besides the radical cure of richitis, which is to be attempted by tonic and absorbent medicines, external palliative means are not to be omitted. 4. Stupor of the teeth from harsh noises. Thus the painful sensation is brought on by the acute rough sound made by filing various substances, scraping slate, sawing stone, etc. In a fright the gnashing of the teeth has been observed to have a similar effect."

The various causes of toothache are treated at great length, and when the disease is occasioned by caries the following modes of relief were recommended: "1. Pressure on the nerve which comes out of the infra-orbitary canal of the superior maxillary bone. 2. Pressure on the nerve which passes out of the canalis mentalis of the lower jaw-bone. 3. Sulphuric acid applied to the carious part of the tooth by

means of a probe. 4. Vinum pyrethri, vel rutae, or stronger vinegar. 5. Sinapisms to the cheek. 6. Blisters to the nape of the neck and behind the ears. 7. The application of a magnet to the painful tooth. 8. Oil of cloves introduced into the carious tooth. 9. Camphorated milk retained for a time in the mouth. 10. Burning the nerve with a heated probe. 11. Opium applied to the carious tooth, or administered internally. 12. Luxating the painful tooth is another mode of relief which has been proposed. With the aid of a suitable instrument the tooth is to be turned a little round in its socket, and then turned back again into its natural position. Thus the small nerve, which enters the hole in the fang, is either broken or rendered paralytic."

"Plumbatio dentis is the filling of the carious cavity with thin sheet-lead, tin, or gold." The latter was recommended as being preferable to lead, which was apt to be acted upon and dissolved by acid food, "and may therefore produce the saturnine colic." On the other hand, lead was said to be more easily introduced into the tooth and capable of being more firmly fixed there. Some dentists of this period, however, gave the preference to tin. Regarding the work of filling, we read: "The operation is proper, if the carious tooth has a narrow entrance. It can only be performed on the incisors, canine teeth, and first grinders, which are furnished with but one fang. The operation is contra-indicated when the orifice of the caries is wider than its bottom, as the lead cannot then be retained. Also, when pain and inflammation are present, the introduction of the lead must be deferred until these symptoms have subsided. The instruments for the operation are:—

1. The introductor.
2. The perforator.
3. The planatorium.
4. The file.
5. The plates or leaves of gold, about three or four times as thick as those commonly met with.

As for the operation itself: 1. A thin plate of lead, tin, or gold is to be put into the hollow of the tooth by means of the instrument called the introductor. 2. The lead or gold is to be gradually compressed more and more closely, so that it may fill up well the sides of the cavity. This is to be done with the planatorium. Then some holes are to be drilled in the metal with the perforator, and these are to be filled with lead. Lastly, the place is to be rendered even and smooth with the file. The lead, for some days after the operation, proves rather disagreeable to the tongue; but in a short time the patient is habituated to it, and he experiences no longer any such inconvenience. Sometimes pain and inflammation follow; in which case the lead must be taken out for a few days with a pointed instrument. There have

been persons who have had lead in their teeth for seventy years, and upwards, without any annoyance from it."

Finally we come to the practice "of drawing or extracting a tooth," the reading of which is quite sufficient to deter anyone from sighing for the "good old times," at least in the matter of dental surgery.

Our author says: "We shall conclude this article with a few observations upon the surgical operation of extracting a tooth from its socket. The following cases make the performance of it necessary. 1. A carious tooth, producing a severe degree of pain, which can be abated by no remedies. 2. A sharp tooth, which irritates and hurts the tongue, and does not admit of being amended with the file. 3. An ulcer, or abscess of the maxillary sinus. 4. A tooth which renders the socket carious, or causes abscesses, or excrescences of the gums, fistulae of the jaw, or some other troublesome complaints. 5. A milk-tooth not being shed at the proper period, and its presence forcing one of the permanent set to grow in a wrong direction. 6. A tooth growing out of the palate, or in any other unnatural place. On the other hand, the operation is contra-indicated when the gums are highly inflamed, or when a toothache, excited by mercury or the scurvy, is present. Drawing a tooth in these circumstances might give rise to extensive inflammation and angina in a dangerous degree.

"The common instruments are:—

1. The odontagra.
2. The pelicanus.
3. The clavis, or key.

These three instruments are objectionable in one respect: namely, they pull the tooth out of its socket obliquely, and hence they often break the alveolary process or the tooth itself.

4. But the tooth-instrument, which Aitken has described, draws the tooth out of its socket perpendicularly, and on this account has an advantage.

5. The tooth forceps.
6. The pes caprinus, or punch.

The molars, when they can be firmly taken hold of, may be extracted with any of the first four instruments. The incisores, canini, and first molars may be drawn out with the forceps. Stumps and fangs cannot be taken hold of with these instruments; they must, therefore, be pushed out of the alveolary process with the pes caprinus, or punch, and then be removed with a pair of forceps. The patient and surgeon are to place themselves as follows: 1. If the tooth be in the upper jaw, and it is to be taken out with the odontagra, pelicanus, or punch, or if the tooth which is to be drawn is in the lower jaw, the patient must be seated in a low chair, or on the ground, the surgeon standing behind him. 2. But if the tooth is to be taken out with the

key, or from the upper jaw with the forceps, the patient is to sit in a common chair, and the surgeon is to stand in front of him. The following are the different modes of performing the operation.

"1. Of extracting the tooth with the odontagra. The inner gum of the tooth about to be drawn is to be depressed with the claw of the instrument nearly down to the alveolary process. The other part of the instrument is to be applied to the crown of the tooth. While the thumb is employed in making firm pressure upon the claw, the handle is to be held with the fingers, and, under the direction of the palm, the tooth is to be raised perpendicularly from its socket. By means of the screw, which admits of being turned, the instrument may readily be adapted to the larger teeth.

"2. Of drawing a tooth with the key. The key is applied to the tooth in nearly the same way as the odontagra, except that the thumb of the other hand is placed under the claw; at the commencement, the key is to be turned very gradually; and the tooth, when it yields, is to be cautiously and slowly raised, lest it slip away, and remain adherent to the gum.

"3. Of drawing a tooth with the pelicanus. The claw of the instrument is to be applied to the inside of the neck of the tooth, while the rotula is to be put upon the two neighbouring teeth. The thumb of the hand not holding the instrument is to be applied to the inside of them, so as to counteract the resistance of the rotula.

"4. Of the extraction of a tooth with the forceps. The neck of the tooth being firmly grasped with the forceps, it is to be gradually moved, until it is sufficiently loosened to admit of being taken out perpendicularly.

"5. Of taking out a tooth with the pes caprinus, or punch. The two points of the instrument are to be firmly applied, under the gum, to the lower part of the neck of the remaining portion of the tooth. The thumb of the hand not thus employed is to be covered with some linen and applied internally. The fang is then to be pushed out of the socket, and removed with a pair of forceps.

"With regard to the symptoms arising after the operation, a slight hemorrhage and a swelling of the gums and cheek are the usual consequences. These, however, are free from danger, and when the mouth is washed with a gargle of tepid vinegar they are soon relieved. The more serious consequences which sometimes occur after the extraction of a tooth are:—

1. A violent and dangerous degree of hemorrhage.
2. Alarming inflammation of the gum and cheek.
3. Abscesses of the gums; very apt to take place when the gums have been considerably bruised by the instrument, or when splinters of bone are left behind.

4. A fracture of the alveolary process of the palate. This accident is the most liable to happen when the fangs of the teeth diverge, or when the fang and socket have grown together by the process of ossification. The existence of the last case may be known by the neck of the tooth being curved. Here the tooth should always be drawn out towards its concave side.

5. Dislocation of the jaw. This may occur if the mouth be open too much, or the lower jaw be brought too much forward in the operation. The luxation ought to be immediately reduced.

6. Fracture of the jaw.

7. Caries of the socket.

8. Lastly, fracture and luxation of the tooth may be the consequences of an unsuccessful attempt to perform the operation."

We are told that a Danish physician named Hagerup maintained that in certain cases one may hear with the teeth! Regarding the teeth of animals we are told that "there are some fishes which have teeth on their tongues, as trouts; others have them at the bottom of the gullet, as the codfish; some, as the great sea-dog or shark, called *Canis carcharias,* have three, four, or five rows of teeth on the same jaw; the crocodile three, and those all incisors; vipers have two large crooked canine teeth which are movable, and ordinarily lie flat, only being raised when they would bite; and the *Rana piscatrix,* sea-dog or sea-devil, has whole rows of the like movable teeth. The toad and cuttle-fish have no teeth, and yet they can bite."

In conclusion, the brief analysis of the chemical properties of teeth is not without interest. "The teeth closely resemble bone in their composition. The bodies consist of a cartilaginous basis, united with phosphate of lime, and small proportions of other earthy salts. The enamel differs so far only from the bodies that it contains no cartilaginous matter, but consists entirely of earthy substances. The teeth have been often examined, and with various results, according to the state of chemical knowledge at the period of examination. We do not think it necessary to give an account of all that has been said on the subject, but shall confine our attention principally to the latest and most perfect anlysis. We shall begin with the analysis of Mr. Pepys, who found the enamel of the teeth composed of

Phosphate of lime	78
Carbonate of lime	6
Loss and water	16
	100

The bodies of the teeth, according to the same chemist, consist of the following proportions:

	Roots of the teeth	Teeth of adults	First teeth of children
Phosphate of lime	58	64	62
Carbonate of lime	4	6	6
Cartilage	28	20	20
Loss	10	10	12
	100	100	100

"A much more complete analysis, however, of the enamel of teeth, has lately been made by Berzelius. He gives the following table of his results, compared with the composition of the bones of the same animals:

	Dried human bones	Enamel of human teeth	Bones of oxen	Enamel of ox teeth
Cartilage	32.17	..	33.30	3.56
Blood vessels	1.13	..		
Fluate of lime	2.00	3.2	2.50	4.00
Phosphate of lime	51.04	85.3	55.85	81.00
Carbonate of lime	11.30	8.00	3.85	7.10
Phosphate of magnesia ...	1.16	1.5	2.05	3.00
Soda, muriate of soda, water, etc.	1.20	2.0	2.45	1.34
	100.00	100.00	100.00	100.00

He confirms the discovery made many years before by Morichini, an Italian chemist, that the enamel of teeth contains fluoric acid—a circumstance which was called in question by later inquirers."

"Oakdene," Honor Oak.

DENTAL LAWS

Summary of Dental License Requirements Throughout the World

By Alphonso Irwin, D.D.S., Camden, N. J.

MONTANA, U. S. A.

The Board of Dental Examiners consists of: Dr. P. J. Sweeney, President, Red Lodge; J. A. Wright, Vice-President, Havre; R. H. Nelson, Treasurer, Missoula; M. E. Gates, Secretary, Helena; A. A. Baker, Glendive.

The dental laws are dated March 12th, 1895, March 9th, 1909.

The English language, dental supervision, examination and registration are required. The examinations are held the second Monday in January and July at Helena, or as announced; fee $25.00, if successful; the certificate is $25.00 additional.

Five years dental practice, a diploma from a reputable dental college, and an examination of all applicants upon the subjects taught in a standard dental college, and the practical tests as announced by the Board are required. If successful the candidate must register his certificate within sixty days with the County Clerk or be prosecuted for practising dentistry without a license.

Annual dues of $4.00, which must be paid to the Secretary of the Board on or before May first, by each dentist. The sending of notices is not required. You should know the law.

No interchange of licenses.

Marshall E. Gates, Secretary, Helena, Montana.

Rules for Conducting Dental Examinations

1st. Examiners must retain the question papers securely in their own possession prior to their distribution to the candidates.

2nd. Help of every kind must be withheld from the candidate. The answers must come from his own knowledge. Each subject must be completed within a reasonable specified time.

3rd. No candidate shall under any circumstances communicate with any other candidate, nor have books or helps of any kind during the examination.

The examiners will explain the intent of any question not thoroughly understood by the applicant. Each candidate must affirm that he or she has complied with the above rules.

4th. No fees shall be returned, but in case a candidate shall fail to pass the required examination, he or she may, at the next meeting of the Board, take another examination without additional fee.

5th. Partial or imperfect answers shall be rated by the examiners in accordance to their degree of correctness.

6th. Good and satisfactory evidence of ability to perform practical work in dentistry must be presented, and approved by the Board, before a certificate can be issued to the applicant, even though the written examination received highest markings.

General Rule—To receive a certificate a grade of 75 per cent is required in all subjects, both written and practical.

Exception to General Rule—Should an applicant fail to receive a grade of 75 per cent, but not less than 60 per cent, in three or less written subjects, and who shall receive a grade of not less than 85 per cent in all practical demonstrations, and a general average of not less than 75 per cent in all written examinations, he or she shall then be entitled to receive a certificate.

7th. No candidate is permitted to make any reference on his examination papers to any college or professor thereof.

Handwriting of candidate must be legible, and spelling and correct use of language will be taken into account. An evidently evasive answer is worse than no answer.

8th. Upon no pretext shall any question paper or answer paper be taken from the room by a candidate before, during or after examination. Should a candidate receive permission to be absent from the room, all papers relating to the examination must be placed in the keeping of the examiner granting the permission, and before resuming the examination the candidate shall declare that he or she has received no outside assistance. A breach of this rule shall vitiate the examination of the candidate guilty of the act.

9th. Applicants should bring such pens as they prefer, as the answers are to be written in ink. A fountain pen preferred.

The Board will furnish chairs, sterilizers, blow-pipe, Bunson burners, plaster, and investing material; though the applicant may use his own if he prefers.

The applicant must furnish his own patients, but the Board will assist by placing a notice of the date and place of the examination in the papers.

For the practical work the Board requires a gold foil filling (preferably a two surface); an amalgam filling (preferably a two

surface); the construction and soldering of a Richmond crown; the mounting of casts upon an anatomical articulator (the Board furnishes the casts). The setting up of full upper and lower dentures in wax, and such other demonstrations as the Board may require. All construction work must be done before the Board.

General and Specific Information

No person can commence the practice of dentistry in this State without first having obtained a certificate from the Board of Dental Examiners of Montana. The possession of a diploma does not give its holder a right to practise in this State. Applicants must bring their diplomas and present them to the Secretary for inspection. *Montana does not exchange licenses with any state.*

Recording State Certificates

Certificates must be recorded with the clerk of the county in which you intend to practise. Until your certificate is put on record you are not a legal practitioner, and if it is not recorded within sixty days after date of issuance, it may work a forfeiture of the same.

Applications and fees must be in the hands of the Secretary at least ten days before the meeting, and earlier, if possible. The examination fee and certificate fee are $25.00 each. The fee of $25.00 must accompany the application, and the $25.00 for the certificate is to be paid in time to allow opportunity for registration within the prescribed 60 days. Applicants must be present at the opening session of the meeting.

If an application is written in any evasive language so as not to allow a full understanding of the case, or all questions are not answered, the application may be rejected. All applications must be typewritten.

If you have a question to ask be sure it is not answered either in the law or rules before writing the Board. Understand the law before going to the State, do not wait till you have been to the expense and time of moving and then try to make the law conform to you.

Examinations

Examinations are not designed to restrict or preclude the numerical growth of our profession in this State, the object is to simply ascertain if the applicant is, according to the best and impartial judgment of the Board, qualified to practise dentistry. To this end the candidates are examined upon each of the following subjects, as per Section 1577 of the laws governing the practice of dentistry in Montana.

From ten to twenty questions on each subject will be submitted. In all cases practical demonstrations are required and the markings

rated as in the written examinations. Persons desiring to take these examinations, should, at least 30 days prior to the Board meeting, communicate their intention to the Secretary of the Board.

Meetings

The annual meeting for examinations will be held each year in Helena, beginning on the second Monday in January and in July at 9.00 o'clock a. m. sharp. This is optional with the Board, however, and due notice of any change will be given.

Special Privileges

No temporary permits to practise are issued by the Board.

No person is permitted to practise dentistry without complying with the requirements of the law and all such persons will be prosecuted who commence to practise dentistry before taking the required examinations and receiving a certificate.

The Board desires it known that the acceptance of the application fee does in no way grant the applicant the right to practise dentistry before complying with the requirements of the law.

Annual Dues

Annual dues ($4.00) should be paid on or before May 1st in each year. Failure in this, his or her certificate may be revoked by the Board of Dental Examiners upon thirty days' notice from the Secretary to the person holding such certificate, unless such dues are paid with penalty added.

The sending of dues notices is not required. You should know the law.

Dues should be forwarded to the Secretary of the Board either by express money order or post office money order, and the receipt for said order preserved until receipt for dues is received. Neither the Secretary nor the Board will be responsible for money sent in open mail. A receipt for a money order, costing only a few cents, may save trouble. Familiarize yourself with the dental law by an occasional reading of the same.

Errors in name, addresses, etc., as well as changes in location, should be brought to the notice of the Secretary.

M. E. Gates, Secretary,
Verified Jan. 29th, 1924. *Helena, Montana.*

Montana State Board of Dental Examiners

(Applications must be typewritten)

Sessions are held on the second Monday in January and July.

All applications for examination must be in the hands of the Secretary not later than ten days previous to the opening of the examination, and must be sworn to before a Notary Public.

All applicants are examined in both theory and practice, and must come prepared to perform practical demonstrations in both operative and prosthetic dentistry, applicant to furnish all instruments, materials and patient.

All applicants must bring their college degree and deposit it with the Secretary until after the session.

No special permits to practise dentistry in Montana can be granted under the law. No special examinations are held.

To receive a certificate a grade of 75 per cent is required in all subjects, both written and practical. Should an applicant fail to receive a grade of 75 per cent, but not less than 60 per cent, in three or less written subjects, but who shall receive a grade of 85 per cent in all practical demonstrations, he or she shall be entitled to receive a certificate.

Application for Certificate

I hereby make application for a certificate entitling me to practise dentistry in the State of Montana as provided in the Revised Codes thereof, and herewith enclose the required fee, twenty-five dollars ($25.00), payable to the Secretary of the Board. I will pay the certificate fee of $25.00 additional when certificate is granted.

Montana Law, Approved March 9, 1909, As Amended

Transcript about Examinations

Section 1576. Any dentist who has been in legal practice for five years or more in any state in the United States which has an exchange certificate law with that of Montana, and is a reputable dentist of good moral character and who is desirous of making a change of residence into another state, may apply to the Examining Board of the State in which he resides for a new certificate, which shall attest his moral character and professional attainments, and said certificate, if granted, may be deposited with the Examining Board of the State of Montana, and said Board in exchange therefor (may) grant him a license to practise dentistry in the said State of Montana. A fee of fifty dollars ($50.00) will be charged for each exchange certificate and proceeds therefrom to be paid into the treasury of the State Dental Board of Montana.

Section 1577. Any person who desires to begin the practice of dentistry in the State of Montana after the passage of this Act shall appear before said Board of Examiners at any of its regular or special

meetings for examination. To be eligible for such examination the applicant shall give satisfactory evidence of having practised dentistry for five years or shall present a diploma from a reputable dental college. The examination shall be conducted in English and shall be thorough, practical and sufficient to test the ability of the applicant to practise dentistry. It shall include: Operative and Prosthetic Dentistry, Osteology, Oral Surgery, Dental and General Anatomy, Histology, Bacteriology, Physiology, Pathology, Chemistry, Metallurgy, Materia Medica, Therapeutics, Orthodontia and Anesthetics. Demonstrations in Operative and Prosthetic Dentistry, Prognosis and Diagnosis will be required. All applicants must furnish their own material for demonstration. If the examinations prove satisfactory to said Board of Dental Examiners, they shall issue a certificate of registration to the person examined. All certificates issued by the Board shall be signed by its President, Secretary and a majority of the Board present, and shall have its official seal attached thereto.

MONTENEGRO

Montenegro now forms a part of Jugo-Slavia. Medical supervision, degrees, standards and examinations were the pre-world war requirements. Legislation is in a formative stage in Montenegro.

A dentist desiring to locate in this country (Jugo-Slavia) must have a diploma as a doctor of medicine and as a doctor of dental surgery; if locating in the provinces which were formerly Austro-Hungarian, and if locating in Serbia it is sufficient that he have a diploma as a doctor of dentistry. Dental examinations are not held in Jugo-Slavia, and up to the present time there are no dental schools in the Kingdom. The practice of medicine or dentistry is limited to the subjects of the kingdom. Living and other conditions have become stabilized, but there is a lack of dentists in the country, and outside of the large cities little dental service can be obtained.

Official advices from Belgrade verified Jan. 2nd, 1924.

DENTAL ECONOMICS

An Address to Dental Students as the Dentists of the Future

By Hedley Ham, L.D.S., D.D.S., Melbourne, Australia

(*Continued from October*)

The basis on which fees are computed, as I have already described, is a fair average one to which the dentist is entitled, and if he does not keep up to that standard he is going to do himself a very grave injustice, and also the public, because the patient pays over and over again in things besides money for every reduced fee. The loss of a tooth or teeth, even health, through hurried bad dentistry has no recompense in money saved.

There are many points I have not touched on, such as fees charged to members of other professions and their families, poor patients and charity patients and other considerations, but I can only give time to the main points. From what you now know it is possible to form an estimate of the expense of dental operations, and as to whether present fees are profitable or not, but you are advised as well to get a good bookkeeper to keep a record of all these things.

Nothing will give the dentist more courage and ability to sell his services at proper fees than the knowledge gained from properly kept books in his own practice. You must know your costs if you would know your remuneration. You have only 20 years or less on the average to make a competency, and it is suggested that you can succeed only by the result of detailed knowledge of the business conduct of your practice.

Clapp suggests a system of bookkeeping which embraces all the points mentioned. There are many young fellows in offices who would gladly keep your books and details for a small sum monthly. They soon get to know what is wanted, but you too must understand it all and give an evening or two to go over the accounts with him each month. There are some 60 pages in *Profitable Practice* on bookkeeping. You must look into this subject carefully for yourselves, or I would suggest that later on you have a paper solely on that subject, or

on any of the other subjects that this paper embraces, from other practitioners.

Then there is the buying of supplies. By comparison of prices try buying in quantities—a great deal may be saved in a year. In a large number of the returns from different practices sent in some time ago for information, which appeared in one of the journals, I noticed particularly that the practices that showed good profits were those in which expenses had been kept down.

Work Room

Its light, ventilation and plumbing arrangements, etc., are all worth writing about, but I invite your attention particularly to the necessity of keeping proper records of all the work done in that room. You should have there a book or cards showing name of patient, description of mouths or casts, description of work to be done, from impression to the finished article, the approximate cost of materials, and the length of time spent by the mechanic over each case. This record will check your own office entries and will enable you to assess the fee properly.

In America practical courses are being given on the subject of dental economy, though as yet they have not been established in all colleges. I should like to see something of that nature done here. The graduates would then be better prepared all round to conduct a practice and to establish themselves upon a better footing in the community. The profession would be much more respected by both the public and the dentists themselves. There would be no temptation for any of the graduates to drift into unethical practice, and the public would get better service all round. I want you to think over all I have said about these things. With you lies the opportunity—will you take it?

Dentists are waking up to the necessity of keeping accurate accounts of the details of their work. The benefit of long experience is lost without an accurate record of materials and methods employed in each case, and all discussions and disputes may be definitely settled if the details of the work in each tooth in its right position are produced. There are many systems for carrying out this project, and the same may be said of keeping accounts as well as records, or of both together. Personally, I favor the card system, because the cards can be arranged so easily, and while any account can be readily found, those on active service are in foremost evidence. However, don't have a complicated system—the simpler the better. These records should be preserved safely from any kind of accidental destruction.

A dentist has his right to enjoy the good things of life just as much as the other man, and if he is to do this, then he must not give the credit that dentists have done in the past. No work of any magni-

tude should be started without mentioning some estimate of the fee and the terms of payment. Very few patients will make an objection to discussing it, and it will invariably do away with a lot of heart-burning on each side afterward. When your fees are generally known, the fee for a filling or crown or inlay need not be reiterated, nor is it always in good taste to do so, but of course that depends on what kind of patient you are dealing with.

Accounts should be sent out regularly, and if the work extends over a long period, or members of a family keep coming in, then I find it useful to send a statement marked "monthly," "quarterly," "half-yearly," "end of year," and so on, on the usual account form. But it does not then take the form of the usual account; it gives the person responsible for the money an idea of what is happening. Patients do not like to get a whopping bill just now and again. They may have other obligations to meet and your bill is allowed to wait.

A neat form for sending bills for professional services on good paper should be selected. If within a reasonable time the account is not paid, after re-rendering it, there are many forms of letters or notes which can be sent. I use three:

1. "May I ask you to kindly give your attention to this account."
2. "Having received no reply, I am taking the liberty of registering this letter, as I feel sure you have not received the former accounts sent to you. Would you please remit, etc."
3. "Having had no replies at all, I cannot give any more personal attention to this account, and if not settled within the next nine days it will be placed for collection in other hands."

If you have an accountant he will use his name as acting and look after it. Don't be bashful in quoting fees, and if fees or part fees are offered before or during the work, *always* take them.

Always have some kind of reference with regard to new patients, and find out who sent them, and whatever else you can. Beware of them if they come "running down" another dentist, for they are usually bad payers. The assistant can help here in finding out the address, if the patient is a friend of any old patient, and if so, inquiry can be made discreetly. Don't do a great lot of work without a sure reference. Try to make them feel they are favored to be allowed to join your clientele.

Before bringing this paper to an end, one very important factor must be touched on, and that is the health of the dentist.

Our work is very strenuous and may begin to leave its mark on our health in a few years if we are not very careful. We need to take care of our bodies because our capital is invested in them.

The average life of the dentist is a poor one in comparison with those of other occupations. We cannot afford to jeopardize our reserve

strength, particularly our nervous reserves, by using them up foolishly, so keep fit. Working under stress or unusual demand should never be kept up. The physical condition of the dentist is a great factor in conveying conviction to his patient in the selling of his service. His mind and insight is keener if he is in good health, and patients are very quick to note any slackness on the part of the dentist. Overwork is never economy and must be paid for, sometimes very heavily. Health stands first as the essential of success and special time should be planned in order to give you the opportunity of exercise and rest just as you would plan an appointment for an operation. This may not appeal to you at first, but when you begin to feel the strain of a busy practice, then you will be glad if you can stop at a certain hour and take proper recreation.

By working less months or hours, so will the dentist be able to work more years, and there is no reason why he shouldn't live as long as the average man if he takes proper care of himself. So you, as future dentists, try to work reasonable hours at reasonable fees, which is the solution of this problem.

Now I have finished. I haven't said all I might have. Already this paper is too long, and yet not long enough. It is, however, a beginning. I would advise your executive to plan out fuller lectures on all these points I have mentioned, and I trust this address to you will help and stimulate you to further efforts, and don't forget to read for yourselves those authors whom I have named.

PRACTICAL HINTS

This department is in charge of V. C. Smedley, D.D.S., and George R. Warner, M.D., D.D.S., 610 California Building, Denver, Colorado. To avoid unnecessary delay, Hints, Questions and Answers should be sent direct to them.

NOTE—Mention of proprietary articles by name in the text pages of the DENTAL DIGEST is contrary to the policy of the magazine. Contributions containing names of proprietary articles will be altered in accordance with this rule. This Department is conducted for readers of the DENTAL DIGEST, and the Editor has no time to answer communications "not for publication." Please enclose stamp if you desire a reply by letter.

Editor Practical Hints:

In a recent issue of THE DENTAL DIGEST H. E. D. asks for suggestions relative to treatment for neuralgia. The following information may be of some help to him or others on a percentage of such cases.

About thirty years ago my sister had an attack of chorea, and since that time she was more or less troubled with neuralgia. She consulted the best doctors in Philadelphia, Baltimore and Washington, with no help being afforded.

About a year ago I suggested that she take two grains of calomel once a month (eight ¼-grain pills) to see if it had any effect. The other day I saw her and she said that only once during that time has she been troubled with neuralgia.

A saline cathartic is used the day following the use of the calomel.

G. C.

Editor Practical Hints:

A patient came to me to have a lower right third molar extracted. Made a mandibular injection and extracted the tooth. After the patient got home she called up and said that her right hand was partially paralyzed. What should have caused that?

A. J. J.

ANSWER—Your letter is extremely interesting in that it raises a question of the utmost importance to exodontists, viz., the possibility of an embolus from either the operation of extraction or the nerve block.

Partial paralysis of the right hand would naturally lead one to believe that there was a pressure upon the motor area in the brain. Such pressures are usually caused by an embolus lodging in one of the

arterioles of the motor area. The paralysis being so circumscribed would indicate that the pressure was on a very small area. Of course, it might be coincident to the extraction and not caused by it. We should really have a full history of the patient which would include her age.—G. R. WARNER.

Editor Practical Hints:

I like very much to read your Practical Hint column and think I derive a great benefit from it, so have a case myself that I would like to have you explain.

This patient has been wearing plates for about six months, but if left in the mouth all day the cheeks become irritated and a pronounced ridge forms along the cheek in a plane with occlusal surfaces of the molars. The patient never bites the cheek, but the irritation makes the entire mouth sore. I tried building the buccal flange out with wax so as the cheek would not rub, but this would not help.

Will thank you for any advice you can give.

F. C. R.

ANSWER—I am inclined to think that this patient has probably gone without teeth for quite some time, and that the cheeks have formed the habit of falling into the space between the ridges and that they still try to do this when the plates are in place thus becoming irritated by the buccal surfaces or buccal occlusal angles of the teeth.

I should polish these teeth as smooth as possible, and advise the patient to wear a thick pad such as a short piece of large size cotton roll in the cheeks for several hours each day for several days to extend the cheeks farther than normal until they have acquired the habit of staying out of the space necessarily occupied by the teeth.—V. C. SMEDLEY.

Editor Practical Hints:

I have a case upon which I would greatly appreciate your suggestions.

A woman patient about seventy-two years of age has come to me for a full upper and partial lower denture.

The patient has had fifteen partial lower dentures made, and five full upper dentures, and yet her mouth has not been made comfortable.

Before coming to me she described her condition as that of having a terrible burning sensation all of the time. The mouth is continually inflamed. Thinking that possibly relieving the anterior and posterior foramena in making a new denture this would take care of the difficulty.

I have made a full upper vulcanite denture according to the Tench method. The base is made of black rubber and Trubyte teeth have

been used. The plate fits well and the patient seems quite pleased both with the fit as well as the appearance. I have made a lingual bar denture using black rubber for the vulcanite saddles.

The burning sensation continues and the mouth is quite sore owing to the inflammation. On the upper left ridge and on the upper right, more on the palatal surface, and in the bicuspid region there seems to be the most soreness and inflammation. The lower left side seems all right. The lower right side has a slight ridge and it is quite flabby. There has been a lump on the lower right ridge in the first molar section which has been a source of annoyance to the patient and I have had to trim the denture very much there. Finally I decided to make the lower denture over but insisted that there must be a piece of a root left. The patient could not believe that I was right, for her teeth had been extracted many years previous and many dentures had been "worn." However, a radiogram proved that my suspicion was a fact. The root has been removed.

Possibly this inflammation is due to the action of vulcanite in this particular mouth, even though black rubber has been used. I hesitate in advising a gold plate unless I am positive that the gold dentures will overcome the difficulty. A cast aluminum denture was made which was worse than anything that could have been put in the mouth.

What, in your opinion, is the reason for this inflamed condition? Can you suggest a remedy?

In the event that the inflammation of the mouth is due to the vulcanite dentures will the inflammation develop into more than a sore mouth? Is there, in other words, any serious objection to allowing this condition to continue?

Do gold bases ever produce inflammation of the mouth?

This letter is rather rambling, I think, still there are so many points that come to me upon which I would like your ideas that it is difficult for me to give you the most necessary facts.

Will thank you for your kindness in giving me the help asked for, as I appreciate the Practical Hints department of THE DENTAL DIGEST.

A. D. H.

ANSWER.—In such a case as this I insist upon having full mouth X-ray, so taken in series as to show all of the jaw-bone areas, to determine whether there are root ends, granulumatas or necrotic areas or ragged serrated surfaces of the bone beneath the soft tissue. If any of these conditions are present they must be corrected surgically before an effort is made to fit satisfactory dentures.

In such an abnormally sensitive mouth I would never attempt an aluminum fitting. Gold is very much better and more apt to give satisfaction than either rubber or aluminum, but unquestionably the

best thing is the continuous gum denture—porcelain baked to a smooth glaze upon a pure platinum base. For some reason, which I believe is not thoroughly understood, platinum and porcelain are substances par excellence to be placed in contact with hypersensitive mucous membrane. If the patient can afford this class of denture service I would certainly recommend nothing else.

I have seen badly inflamed mouth conditions under gold plates, though to be sure, very much less frequently than under rubber bases. I have never, however, seen this condition under a continuous gum denture that was properly fitted, with the porcelain correctly fused.

There is always a possibility of any long continued chronic irritation breaking down into a cancerous condition.

Hope that this information may be of some benefit to you.—V. C. SMEDLEY.

Editor Practical Hints:

I am a country village dentist who has to depend on the DENTAL DIGEST for useful ideas.

What advice can I give a young lady patient who is afflicted with an excess of soft calculus (tartar) lodging on lower anterior teeth? It is light yellow in color. After removal it returns inside of ten days. Her father has a very similar condition. Cavity decay nearly absent in these two patients.

A. P.

ANSWER—Your young lady patient can regulate this formation of tartar on her teeth with quite a definite assurance by a changed and carefully regulated diet. She should reduce materially the total quantity of food eaten; increasing decidedly the proportion of roughage, e.g., lettuce, celery, tomatoes, cucumbers, fruits and vegetables, substitute whole wheat for white flour and reduce to a minimum the amount of heavy carbohydrate and proteid foods taken, e.g. meats, sugars, breads, cakes, etc.—V. C. SMEDLEY.

Editor Practical Hints:

Would greatly appreciate your explaining just what is the best method of anesthesia for extracting a lower first molar. A mandibular block seems to work for the posterior two molars, but it seems to miss the first molar for me. You can no doubt clear this up for me. The bicuspids usually receive a good mental injection and I have very little trouble taking out upper teeth painlessly. But I shudder when I have to take out a lower first molar. I use Novocain E, dissolved in Ringers Solution. Thanking you kindly.

R. E. G.

ANSWER—I think your difficulty must be due to your technique in the mandibular block injection, as in our office we have no trouble in blocking all of the teeth on one side, from third molar to central, with the mandibular injection.

Would advise that you take some post-graduate instruction in nerve blocking, or you might be able to secure the necessary information to perfect your technique, from a study of Dr. A. E. Smith's book on "Block Anaesthesia and Allied Subjects."—V. C. SMEDLEY.

Editor Practical Hints:

For ten years or more I used one of the standard makes of cement successfully. I would use a clean slab, proportion my cement, sometimes mix with a bone spatula, sometimes a metal, apply the cement to my crowns, bridges and inlays, adjust the same and in one or two minutes take an instrument and remove the surplus from around the margins of the work, the cement setting firm and hard, snapping off like a piece of brittle glass. I had very little trouble with disintegration and scarcely ever had a piece of work to come loose; but now for the past two or three years I have been having an endless amount of trouble. It takes this same brand for ever and a day to set, if at all; it is almost impossible to keep the saliva off long enough to allow the mix to half way harden, but remains in a sticky mass, and while in this shape if it happens to come in contact with saliva it becomes a rotten crumbling mass.

I have complained to the supply house, have mentioned the troubles to salesmen, have written the manufacturers, but all to no avail.

Have had it hinted that an old worthless war stock was being worked off, also that we could not get the quality in goods that we had before the war; have had one or two batches sent to me advising that they would probably prove more effective; also have tried out three or four other standard makes with practically similar results. I am writing to ask if you could offer some suggestion, and would also like to know if there are other dentists who have been having troubles along this line. F. W.

ANSWER—I am inclined to the opinion that there has been no material change in any of the standard makes of cement but that you have gradually and unconsciously changed your technique, or your place or the environment in the place where your supply of cement is kept. Possibly other medicaments or substances are kept in the same drawer that effect a deterioration of your stock and possibly your mixing technique is at fault.

Do you add very small quantities of powder to the liquid spatulating and incorporating each addition very thoroughly before adding more

powder and do you mix it to a consistency that will cling to the spatula forming a thread about an inch long as the spatula is lifted very slowly from the mass?—V. C. SMEDLEY.

Editor Practical Hints:

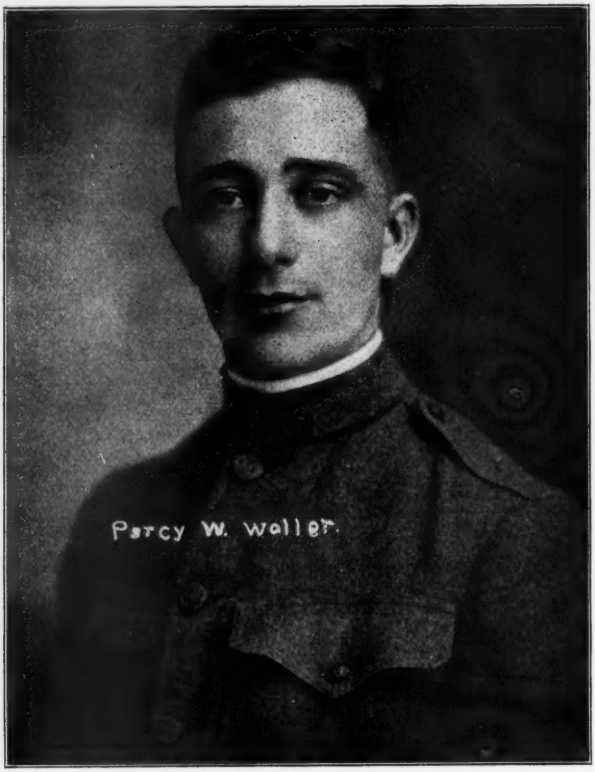
I have a patient, about 60; made him partial upper and lower dentures two years ago. He has been wearing them with comfort until about three months past; now upon eating pickles, oranges or any acid food some of his teeth become very sore, even to the touch of the tongue, and this is not true if he does not wear the dentures. I have treated them three times with silver nitrate, but with no help. This being our fruit season, he is without them most of the time.

I would greatly appreciate if you could tell me what the cause is, and how to remedy it.

W. G. M.

ANSWER—I would suspect in this case that there is probably a lateral trauma on the natural teeth due either to a shifting of the teeth in the jaw or to a settling of the dentures.

Traumatism, either occlusal or lateral, will frequently result in just sufficient pulp irritation to occasion a discomfort such as you describe. Would suggest that you grind plates and teeth to relieve all traumatism and pack around the necks of the teeth a good sedative cement mixed with cotton. This packing may be left on for from several hours to several days.—V. C. SMEDLEY.



Lost!

Age 30. Height about 5 ft. 5 in. Weight about 160 pounds. Blue eyes. Dark brown hair, verging toward black. General complexion dark—smooth face. Quiet manner. Disappeared from Rochester, N. Y., October 9, 1924. Been in different forms of dental laboratory work and business for about 14 years. No known cause for disappearance. Domestic life happy. No business worries.

As this is undoubtedly a case of temporary aberration, it will be a kindness to help locate him and get him back home. Dental laboratory men are especially requested to assist.

Information should be addressed to Mrs. Percy Waller, 78 Arch Street, Rochester, N. Y.

DENTAL LABORATORIES

Instructions on Preparation*

By Samuel G. Supplee, New York, N. Y.

Times are changing rapidly and those who cannot adapt themselves to the changing conditions soon find themselves out of harmony with those around them. It seems that dentistry is advancing more rapidly than any of the other professions, and if the thoughts which are here presented may seem out of harmony with some things written only a short time ago, it is because I am trying to present the subject according to my later conception.

The subject seems to indicate more than one meaning. It may be interpreted to mean giving instructions on how to prepare abutments, design dentures, etc., which time and experience have convinced me should not be expected of us as laboratory technicians, except by way of suggesting methods or distributing information which has been given to us from authoritative sources.

Again, it may be interpreted to mean instructions regarding impression technic to be employed. This, too, is being taken care of by capable men in the dental profession. However, from the viewpoint which I think we, as laboratory technicians, should consider at these meetings, it seems more in order that we should present it from the standpoint of "What should a laboratory man accept in order that he may produce the results expected of him by the dentist?"

It seems that most dentists have shown such improvement in preparation, impression- and bite-taking within the past few years that it is quite in order that we begin to criticize the laboratory men for accepting poor impressions from those dentists who have not as yet been brought to realize the great importance of proper technic by representative members of the dental profession.

Viewing it from a broad standpoint, it would seem to me that if we could only get it into the mind of the dentist that it is necessary for us to see the mouth exactly as he sees it, only in the form of full casts of both jaws when constructing either partial or full restorations,

* Read before the American Dental Laboratories Association, Chicago, Ill., September 17, 1924.

we should go a long way toward helping the situation. We should unite in demanding base-plate bites properly marked for all full dentures and full impressions of both jaws for all partial restorations, whether we are making dentures for one or both. The impression should be taken in the material and by the technic with which the dentist is most familiar, preferably plaster. Antagonizing impressions should be taken of the occlusal third of the teeth and in plaster or wax, using a tray.

This may sound rather odd, coming from the speaker, but I wish you to understand that I still believe that compound is an ideal impression material, but should be employed only by those who have been thoroughly trained in its use. It is a most unreliable material in the hands of the inexperienced. The House, Hall, Patterson and other technics combining plaster and compound are far more reliable for the dentist who is not specializing.

For a number of years it has been an accepted requirement by almost every laboratory man that modeling compound should be the material for the impression of the teeth of the occluding jaw. This idea should be changed. Experiments conducted during the past two years have convinced the writer that even the double insertion compound technic taught by the writer is unreliable in the hands of those who have not made a careful study of compound.

It is easy for one to press a little harder on one side than on the other, or remove the impressions too soon, with the result that the entire occlusal plane of a compound impression will be distorted and the occlusal surfaces of the individual teeth changed. A paraffined wax is a less dangerous material for impressions of the occluding teeth, because it springs rather than warps.

Plaster is ideal because we may fill the cusps with a low-fusing metal and back it up with plaster, thus saving time and insuring accuracy.

As an experiment to confirm the above statement, we requested each of two very good men to take six impressions of a lower jaw with all the natural teeth standing, one each to be taken carefully in plaster, compound and wax of the *occlusal third* of the teeth and one each to be taken carelessly in the same materials. The carefully taken plaster impressions were poured in metal and all the rest were poured in stone. I have brought these experiments with me and it may be interesting to note the deviation from instructions and great difference in the occlusal surface of all the models, the best being those taken in plaster and the next best those that were taken both carefully and carelessly in wax.

You will observe that different sizes of trays and a small, medium and large bulk of material have been employed. In the first place,

you will note that in most instances the compound and wax have been forced considerably beyond the occlusal third and have taken in the gum tissues, thus adding an unnecessary risk of warpage or drawing.

Regardless of their ignoring instructions, it is interesting to note that even the impression employing the large bulk of wax was better than the small bulk of compound and in some respects better than anything taken in compound. The small impression taken in wax was more accurate than the carefully taken compound impression by the second insertion technic.

I believe that this experiment proves conclusively why we are always having trouble with bites and the difference between set-ups on the model and set-ups in the mouth. If I bring you no other message worthy of consideration, let it be that we all adopt the slogan of *plaster or wax as the means of taking impressions of the antagonizing jaw.* It will require some effort on our part, because those who do not use compound for denture impression work rely on it almost exclusively for their impressions of antagonizing models.

My second suggestion is that we join in impressing the dental profession with the importance of small, thin wax bites for all partial dentures, whether fixed or removable, accompanied with impressions large enough to include the corresponding teeth on the opposite side, for both the denture and the antagonizing jaw, if for no other reason than to enable us to save time in accurately transferring central occlusion to the casts, because dentists and, I think, most laboratory men do not realize that more trouble is caused by improperly placing bites on the articulator than by patients' biting wrong.

Dentists are inclined to blame misplaced bites entirely upon the laboratory and on the face of it, it would seem that they are justified. But if we could only get them into our laboratory and ask them to put one of their own bites on a model and have them realize how we have to cut and "hack" a large piece of wax completely to pieces and find that the natural contraction of the wax was such that we either have to break or spread it and do considerable guessing before we finally determine where it belongs, it might change their attitude.

It has been my experience that most dentists, and laboratory men as well, do not realize that the natural contraction of wax after it is taken out of the mouth is sufficient to change a bite so that it cannot be placed on the cast accurately, and "guess" you must, unless you have an accurate model of the opposing jaw. The larger the bulk of wax, the greater the contraction. Dentists all recognize this in their inlay work, so let us be the ones to keep our phase of it before their minds in the form of suggestion or request.

We have found that the "sandwich technic" of placing a piece of 60-gauge tin foil between two sheets of baseplate wax is the simplest

and most reliable. The tin foil keeps the wax from drooping when heated and limits the shrinkage of wax and the tendency to warp when being removed from the mouth.

I have watched the literature of most of the laboratory men, and apart from two or three laboratories I do not know of any who are spending money in advertising the importance of these technics. Yet I do believe that over fifty per cent of what should be profit is consumed in time and energy spent in arguing and making over dentures which could be avoided if we could only get the dentists to see it from our viewpoint. And if they did, it would save them hundreds of dollars each month.

I think we will all agree that we do not have much trouble with those who have been accustomed to doing their own work, and what little we do have can easily be corrected through suggestions over the telephone or by a short letter. The man who has never had to cut down large wax bites, assemble broken parts of plaster impressions and then compare results in the mouth with that of his own hands belongs to the group which seems to be increasing daily and with whom we have the most trouble; so let us for convenience of discussion state a few facts and then place ourselves in his position.

The dentists are fast gaining the idea that the laboratory must be held responsible for dentures fitting the patient's mouth rather than their models, and it seems to me that this should be discouraged rather than encouraged. Competition between laboratories is adding impetus to the opinion, and it is my personal belief that this organization could do a great deal toward clarifying the situation; but to do so, we must first look facts in the face before determining a definite policy or course to pursue.

There are those laboratories who have adopted the policy of the unconditional guaranteeing of dentures to fit the patient's mouth and are encouraging the dentist to believe that it is an unqualifiedly just demand. (They, of course, have advanced their prices accordingly.)

I am firmly convinced that it is going too far when we accept impressions of movable tissues and guarantee them to fit the mouth. Of course, if our prices are very greatly increased to cover the losses on the many doubtful cases, it is quite feasible, but it makes the careful man pay more and the careless man pay less, proportionately, than he should.

The fact must not be overlooked that there is all the difference in the world between impressions of firm teeth and those of movable teeth and tissues. Two impressions of a properly prepared tooth for a jacket crown can be made exactly alike, and by requesting two impressions it is possible to check one against the other and arrive at the definite conclusion that if they are not alike, one or both are wrong. The same

can be said of impressions for small cast clasp bridges that involve only the teeth and ridges. This cannot be said of impressions involving movable tissues.

I think it can be safely said that absolutely no two impressions of mouths involving movable tissues or teeth can be taken exactly alike and over seventy per cent of impressions taken involve one or both of these conditions.

Position of tissues can be changed by plaster, modeling compound or wax, and the amount will depend entirely upon the consistency of the impression material. Contrary to the general belief, tissues can also be readily changed by plaster, hence dentures which fit the model perfectly may not fit the mouth. It is absolutely out of reason for a dentist to ask a laboratory man (who has not seen his patient's mouth) to pass judgment on whether or not his impression is good. At best he can only guess, yet it has become quite the custom to ask the laboratory owner to pass his opinion, and on this opinion the dentist bases his expected guarantee.

Fortunately for the laboratory, as well as for the dentist, both patients and mouths are adaptable and slight differences are not noticeable excepting when dealing with a highly sensitive patient or one who is inclined to expect more of a denture than he should.

1 Union Square.

(To be continued)

EXTRACTIONS

No Literature can have a long continuance if not diversified with humor—ADDISON

There were dirt-eaters in the hills long ago; now they are in the car behind.

If you are a self-starter your boss won't have to be a crank.

(Uncle Bill)—I'll give you a penny for a kiss, Elizabeth.

(Elizabeth)—Nothin' doin'. I can earn more money taking codliver oil.

There used to be a lot of money hidden in old stockings, but there is nothing hidden in the new ones.

(Mae)—Your husband looks tired this morning.

(Lois)—Yes, he had quite a time last night with the baby. You see, there isn't enough room in our apartment to walk the floor, so he had to mark time for three hours.

A dog's intelligence or instinct doesn't seem so impressive when you see him nipping at a mule's hind leg.

It must be a great comfort to have Mr. Dawes along when a tire blows out.

Sandy, Jr., aged 15, was just going into his first long trousers and his father thought it a good time for a lesson in buying. He said, "Now, Sandy, ye gae doon ta Fairgusen's, and whatever price he asks f'r tha panties, ye offer him just one-half."

Ferguson quoted his trousers to Sandy at ten dollars. Sandy says: "I'll gie ye FIVE."

"Now, Sandy, since your father and me are such long-time friends, I'll let you have these trousers for eight."

"I'll gie ye FOUR."

"I'm a poor man and I have five bairns to feed, but f'r auld lang syne, I'll let you have 'em for six."

"I'll gie ye THREE!"

"Hoot, mon! Did ye ever see such a lad. Here! I'll gie ye the pants just to get you out of my store, and don't ever come back."

"I'll na' take less than TWA PAIRS!"

Any girl can be gay in a classy coupe—
In a taxi they all can be jolly;
But the girl worth while is the one who can smile
When you're taking her home in the trolley.

(Nurse)—Telephone, doctor.

(Doctor—who is very busy)—Take the message and you can give it to me later.

(Nurse)—Your little daughter wants to kiss you!

A schoolboy was asked to tell the difference between a biography and an autobiography. His reply was that "A biography is the history of the life of a good man. A naughty biography (an autobiography) is the history of the life of a lady."

My husband always used to be
Fond of my voice and company;
But now he sits and stares in space,
And if I speak, he makes a face.
Sometimes he laughs; sometimes he sighs;
Sometimes he closes both his eyes;
But not one word does he let fall—
He has no thought for me at all!
Is there another woman? NO!
He's just installed a radio!

(Maggie)—Say, Liz, I was talking with your friend Joe last night for a while, and when going away he said "Maggie, you sure have a large vocabulary."

(Lizzie)—Well, that was quite a compliment, wasn't it.

(Maggie)—Compliment! Honest to Gawd ain't I the unlucky thing. Now I'll have to go on a diet again!

An Englishman who had been on a visit to America was telling his friends, on returning to London, that he was offered a drink while in New York which was called "near beer." And I may remark in passing that whoever named it had a bally poor idea of distance.

"Sir," said the young man with enthusiasm, as he seized the lecturer's hand and shook it warmly. "I certainly enjoyed your lecture last night very much indeed."

"I am glad to hear that," said the lecturer, "but I didn't see you there."

"No," admitted the youth, "I wasn't there."

"But," said the puzzled speaker, "how could you enjoy my lecture if you were not there?"

"Oh, I bought tickets for my girl's parents and they both went."

DIETETICS and HEALTH

Do You Know How to Sleep?

This seems like a foolish question, doesn't it? Yet few people know how to sleep so as to get the maximum benefit.

Some suppose sleep to be a natural result of the exhaustion of the body; but it should be remembered that some persons in vigorous health, who hardly know what it is to be tired, are very sound sleepers, while many persons who hardly ever know what it is not to be tired are very poor sleepers.

Sleep is not a complete cessation of the brain activities. Certain body functions controlled by the brain continue during sleep. Moreover, there are certain mental activities, as dreams, differing from the waking state, but which are undoubtedly as much brain action as are the waking mental activities.

Sleep is essential to life. One can live much longer without food than without sleep. Other things being equal, says Dr. Geo. H. Heald in *Healthy Home,* those who sleep well have a chance for a longer life than those who are poor sleepers. Loss of sleep is followed by loss of appetite, by poor digestion and assimilation, and by an increase of "nervousness." Long continued, it leads to a pessimistic, hopeless condition that tends to increase the trouble until it becomes well-nigh hopeless.

It should be borne in mind, however, that shortness of sleeping hours is not always accompanied by ill health. Some persons seem to get as much recuperation from three or four hours as others get from six or eight hours. Possibly it is a matter of sleeping more intensively and less extensively.

It has been asserted that the amount of sleep varies in inverse proportion to the life interests, the one who is a "live wire" requiring less sleep than a "dead" one. Napoleon, during his active campaigns, needed only three or four hours' sleep daily; but when he finally retired from active participation in affairs, to his seaside resort in St. Helena, he slept much longer hours. Edison sleeps but four or five hours a day, and yet he gets as much rest as some who spend ten hours in bed.

Conditions Which Prevent Sleep

(1) Messages to the brain over the various sensory routes—sound, light, cold or heat, pain, jarring movements.

(2) Certain strong emotional states—worry, fear, grief, anger—and also strong mental excitement of any kind.

(3) Various drugs which increase mental excitement as tea and coffee.

(4) Heavy late meals, indigestion, constipation.

(5) Sometimes, an empty stomach.

Sleep Inducers

(1) Cessation of sensory messages to the brain; darkness, quiet, comfortable bed.

(2) Moderate physical or mental weariness.

(3) Hopefulness, trust in God.

(4) Monotony—dry reading, rocking motion, sometimes a sermon.

(5) A neutral bath.

(6) Take sufficient outdoor exercise to produce moderate tire, but not actual fatigue.

(7) Avoid late meals, let the last meal be not much later than six o'clock—preferably earlier—and let it be light.

With some persons the attempt to sleep on an empty stomach is unsuccessful. Such need a little light food before retiring. Some on awakening in the night, find there is nothing like a cracker or a sip of hot milk to put them to sleep again.

Avoid excitement before retiring. Early in the evening a moderately long walk may be advisable; but later, the mind should be engaged in some quiet activity rather than in something exciting.

Have the sleeping room dark, quiet, well ventilated without drafts, and the temperature comfortable. No one can sleep well who is chilled or overheated. The bed should be comfortable—no sagging, lumps, or wrinkles.

With everything favorable, retire expecting to sleep. Some fail to sleep for the simple reason that they expected to stay awake.

If not inclined to sleep, perhaps the use of a neutral full bath, temperature 95 degrees, for half an hour, with as little rubbing as possible consistent with thorough drying, and getting right into bed without chilling, will bring the coveted sleep.

Another measure which is successful with some is to close the eyes and attempt to see things. Faint retinal images will be seen. Study them closely and intently, trying to see images of pictures. Perhaps in a short time the retinal images will become scenes, which

will gradually merge into dreams, and then you will be in the land of Nod.

Having acquired the trick of sleeping, do all in your power to retain it. Avoid foods that might bring on attacks of indigestion; avoid excitement and irregular hours at night; try to establish a regular time for retiring and, as far as practicable, adhere to it. When you establish a regular rhythm in eating, sleeping, and in the functions of the various organs you will be eligible for membership in the Ancient and Honorable Order of Prospective Centenarians.

Good News for the Afflicted

Account books are dull, prosy things to the unimaginative mind, yet they often contain more of real romance than the cleverest novelist is able to get into his fiction. Who, for instance, can crowd as much of glamour into such brief space as the laconic statement that the securities of the Rockefeller Foundation have increased by $3,238,983 in the last twelvemonth?

There are struggling college students to whom the figures mean triumph; there are poor professors to whom they mean the coronation of a life work; there are fever sufferers in far-off lands to whom they mean life itself. They will bring to light knowledge which will benefit generations unborn. They will bring hope to the hopeless and heart to the discouraged.

The Foundation is richer this year through intelligent administration. Securities were sold on a market which had risen above their book value. It is interesting to observe that the proceeds were largely reinvested in government bonds, the holdings of United States securities having almost doubled within the year.

The total value of the holdings is $164,812,198, large enough to warrant ample income for even such ambitious enterprises as the fund has on hand and in contemplation.

The Big A. D. A. Meeting at Dallas November 10-14, 1924

The Registration Department will be open from 8:30 o'clock A. M. until 5:00 o'clock P. M. on Monday, Tuesday, Wednesday, and Thursday, November 10, 11, 12, and 13, and from 8:30 A. M. to 10:00 A. M. on Friday, November 14, at the entrance of the Convention and Exhibit Hall.

STATEMENT OF THE OWNERSHIP, MANAGEMENT, CIRCULATION, ETC., REQUIRED BY THE ACT OF CONGRESS, OF AUGUST 24, 1912

OF THE DENTAL DIGEST
at NEW YORK, N. Y.
State of New York } ss.
County of New York }

Published monthly
for October 1, 1924

Before me, a Notary Public in and for the State and county aforesaid, personally appeared John R. Sheppard, who, having been duly sworn according to law, deposes and says that he is the Secretary of the Dentists' Supply Co., Publishers of THE DENTAL DIGEST, and that the following is, to the best of his knowledge and belief, a true statement of the ownership, management, etc., of the aforesaid publication for the date shown in the above caption, required by the Act of August 24, 1912, embodied in section 443, Postal Laws and Regulations, printed on the reverse of this form, to wit:

1. That the names and addresses of the publisher, editor, managing editor, and business manager are:

NAME OF	POST OFFICE ADDRESS
Publisher, THE DENTISTS' SUPPLY COMPANY	220 West 42nd St., New York, N. Y.
Editor, GEORGE WOOD CLAPP	New Rochelle, N. Y.
Managing Editor, GEORGE WOOD CLAPP	New Rochelle, N. Y.
Business Manager, L. W. DUNHAM	New Rochelle, N. Y.

2. That the owners are:

THE DENTISTS' SUPPLY COMPANY	220 West 42nd St., New York, N. Y.
DETREY & CO., LTD.	23 Swallow St., London, England
LEROY FRANTZ	Sutton Manor, New Rochelle, N. Y.
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GEORGE H. WHITELEY, JR.	121 W. Springettsbury Ave., York, Pa.
JAMES OSBORNE WHITELEY	122 W. Springettsbury Ave., York Pa.

DE TREY & CO., LTD., is a corporation organized under the laws of England, with an authorized capital stock of 2,000,000 shares of One Pound each, ownership of which is scattered over a considerable part of Europe and includes a long list of names unknown to us, and probably a number of banks and other corporations.

3. That the known bondholders, mortgagees, and other security holders owning or holding 1 per cent or more of total amount of bonds, mortgages, or other securities are: None.

4. That the two paragraphs next above giving the names of the owners, stockholders, and security holders, if any, contain not only the list of stockholders and security holders as they appear upon the books of the company, but also, in cases where the stockholders or security holder appears upon the books of the company as trustee or in any other fiduciary relation, the name of the person or corporation for whom such trustee is acting, is given; also that the said two paragraphs contain statements embracing affiant's full knowledge and belief as to the circumstances and conditions under which stockholders and security holders who do not appear upon the books of the company as trustees, hold stock and securities in a capacity other than that of a bona fide owner; and this affiant has no reason to believe that any other person, association, or corporation has any interest direct or indirect in the said stock, bonds, or other securities than as so stated by him.

THE DENTISTS' SUPPLY COMPANY,
J. R. SHEPPARD, *Sec'y & Treas.*

Sworn to and subscribed before me this 4th day of October, 1924.

[SEAL] EMELIE E. SCHAAD
Notary Public, Westchester County
Certificate filed in N. Y. County
Clerk's No. 83; Register's No. 5264—My commission expires March 30, 1925.

FUTURE EVENTS

THE CONNECTICUT DENTAL COMMISSION will meet at Hartford on November 18, 19 and 20, 1924, to examine applicants for license to practise dentistry and dental hygiene and to transact any other business proper to come before them. For further information apply to Arthur B. Holmes, Recorder, 43 Central Ave., Waterbury, Conn.

The next meeting of THE NEW YORK STOMATOLOGICAL SOCIETY will be held on Monday, November 24, 1924, at 2 P. M., at 2406 University Ave., New York City.

Dr. George W. Shera will give a paper and a clinic on "Impressions With Mouth Closed Under Normal Biting Stress."

DR. STANLEY SLOCUM, *President,*
DR. F. W. MCDONALD, *Secretary,*
33 West 42nd Street, New York City.

The next semi-annual meeting of the COLORADO STATE BOARD OF DENTAL EXAMINERS will be held in Denver, commencing December 2, 1924, and will continue for five days.

For further information, address:

WM. H. FLINT, D.D.S.,
Littleton, Colo.

THE IOWA STATE DENTAL BOARD will meet for the purpose of examining candidates for a license to practise in Iowa, at Iowa City, Ia., College of Dentistry, beginning Monday, December 8th, 1924, at 9 A. M. An examination for dental hygienists will be given.

All papers and credentials must be filed with the secretary 10 days prior to the date of the meeting.

For further information and application blanks, address

DR. C. B. MILLER, *Secretary,*
712 Equitable Bldg., Des Moines, Ia.

THE NEVADA STATE BOARD OF DENTAL EXAMINERS will hold their next examination at Reno, Nevada, beginning Monday, December 8, 1924.

G. H. MARVEN, D.D.S., *Secretary,*
P. O. Box 56, Reno, Nevada.

The Annual Meeting of THE DENTAL PROTECTIVE ASSOCIATION OF THE UNITED STATES will be held at the Palmer House, State and Monroe Streets, Chicago, on the third Monday of December, the 15th, at 4 P. M. sharp. The report of the officers will be given; a board of directors will be elected and such other business transactions as should come before the Association will be taken up.

All members are urgently requested to be present.

By Order of Board of Directors,

J. G. REID, *President,*
D. M. GALLIE, *Vice-President and Treasurer.*
E. W. ELLIOT, *Secretary.*

January 21, 22 and 23, 1925, are the dates on which THE CHICAGO DENTAL SOCIETY will hold its ANNUAL MIDWINTER CLINIC AND MEETING at the Hotel Drake.

The program is practically completed. It covers all phases of dentistry and will appeal to the specialist as well as to the general practitioner. Many men new to Chicago Society audiences will appear in the scientific and technical sections.

More exhibit space has been reserved than ever before, which ensures a most comprehensive display of dental equipment and merchandise.

All members of the American Dental Association are cordially invited to attend.

Reduced railroad rates will be available.

M. M. PRINTZ, *Secretary,*
25 E. Washington Street, Chicago.

The fifty-sixth annual meeting of the KENTUCKY STATE DENTAL ASSOCIATION will be held at Brown Hotel, Louisville, Kentucky, April 6, 7, 8, 1925.

DR. HUGH M. MCELRATH, *President, Murray.*
DR. W. M. RANDALL, *Secretary.*
1035 Second Street, Louisville.

THE DENTAL SOCIETY OF THE STATE OF NEW YORK will hold the fifty-seventh annual meeting at the Hotel Ten Eyck, Albany, N. Y., May 13, 14, 15, 1925. All literary exercises, clinics and exhibits will be staged at the Hotel Ten Eyck.

The Society extends a cordial welcome to all ethical dentists.

Make reservations early at the Hotel Ten Eyck.

Exhibitors are requested to address Dr. E. W. Briggs, 1116 Madison Avenue, Albany, N. Y., for space.

A. P. BURKHART, *Secretary,*
57 East Genesee Street, Auburn, N. Y.